

THE IRON AGE

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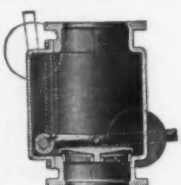
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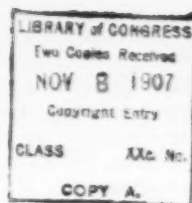


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THE IRON AGE

New York, Thursday, November 7, 1907.



The Leland Universal Grinder.

The universal grinding machine, front and side views of which are shown in Figs. 1 and 2, is intended for both toolroom and general commercial use, and is built by W. H. Leland & Co., Worcester, Mass. In the toolroom it may be used for cutter and reamer grinding, and in the finishing of manufactured products it is claimed to be as economical and accurate as machines specially built for

avoiding the necessity of extension collets for surface grinding, or the use of the main spindle for internal grinding. The gooseneck has another important advantage in that it permits the grinding spindle head to be set at any angle in a horizontal plane. This adjustment is accomplished by a hand wheel through a mechanism that is self locking. The necessity of cutting away the table to straddle the post is avoided, which conduces to rigidity and accurate alignment. The wheel spindle head is raised and lowered by a wheel at the center of the front

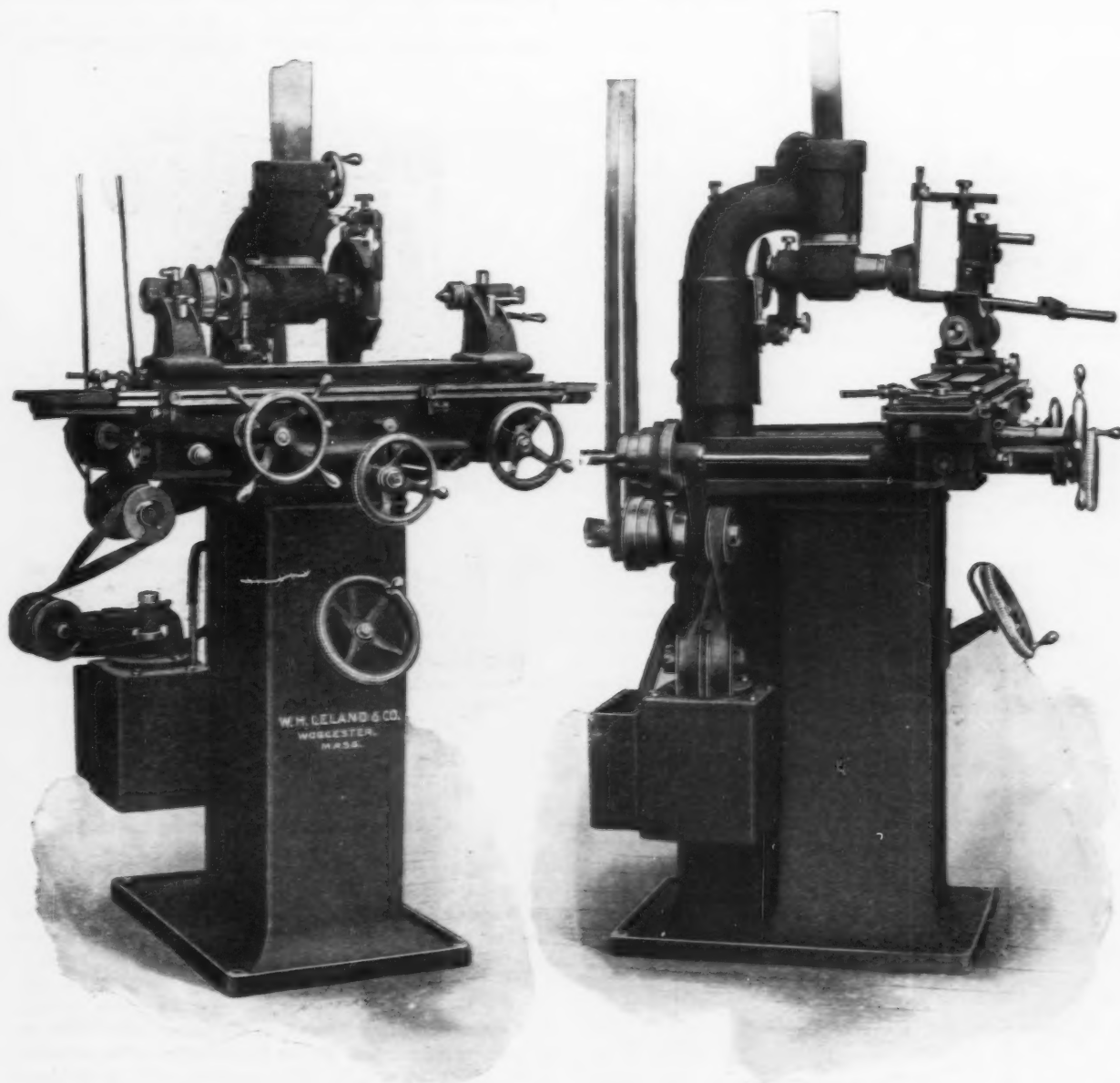


Fig. 1.—The New Leland Universal Toolroom and Commercial Grinding Machine.

Fig. 2.—Side View, Showing Machine as Set Up with Universal Attachment, Grinding an End Mill.

such work. Among its principal advantages are its ability to do both wet and dry grinding, to be quickly changed from one class of work to another, and to produce accurate work with the exercise of but little care or skill on the part of the operator. It takes 20 in. between centers, grinds to this full limit of length and swings nominally 9 in., although it will take work up to 10 in. in diameter.

A characteristic feature of the machine is the peculiar gooseneck column which carries the head. Its form permits the table to run directly under the wheel head,

of the base, mounted on an inclined shaft so that its graduated readings may be watched by the operator as he stands at his work without stooping.

Ample room is afforded for the heavy wheel head support, which is essential for accurate and economical grinding. The gooseneck permits effective protection of its bearings from grit and water. Throughout the machine effort has been made to protect working surfaces, the only exception being the very top of the swiveling table.

The table has three feeds: an automatic power feed, a

quick hand feed and a slow hand feed for use when grinding on the face chuck or to shoulders. The complete machine includes a universal attachment for grinding or backing off all kinds of cutters and end mills and for other work; a semi-universal vise for surface work; an internal grinding spindle for small holes and a chuck for holding such work; a face grinding chuck; and other parts, which make the machine complete in its universal feat-

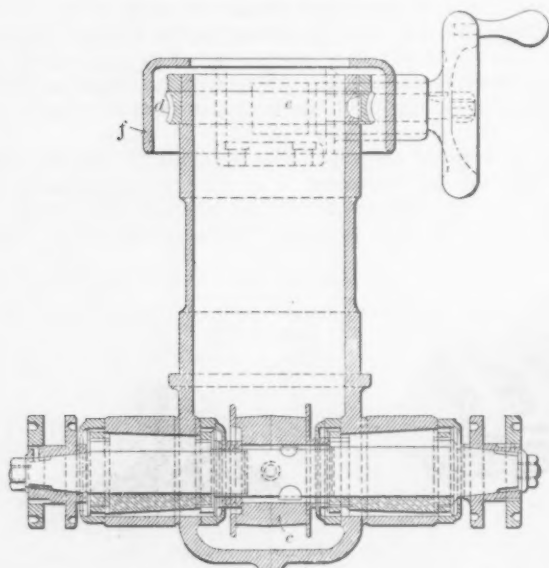


Fig. 3.—Detail of Wheel Head.

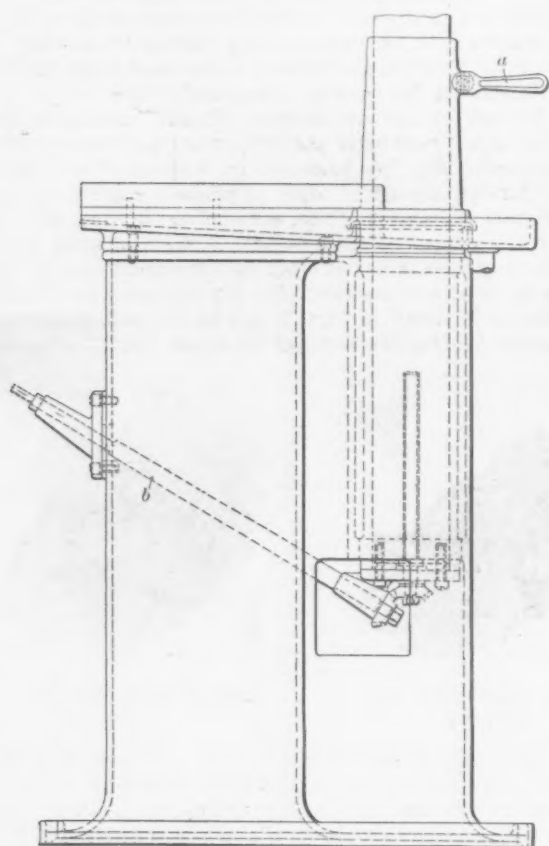


Fig. 4.—Detail of Head Elevating Mechanism.

ures. All attachments are interchangeable and the machine itself is constructed so that its parts are interchangeable throughout.

The Leland grinder is being placed on the market for the first time and is new to the trade, but one has been in successful operation in the manufacturer's shops for four years, demonstrating its practicability for the various classes of work it is designed to perform and the durability of its parts and mechanism under service conditions. So satisfactory has the original machine proved

that no changes in design and construction have been necessary.

The wheel head, shown in detail in Fig. 3, is carried by a gooseneck column supported in a sleeve made solid with the base, into which it is forcibly driven, giving great rigidity. The gooseneck column slides on the sleeve, allowing a vertical movement of the wheel head of 7 in. The column bears on the sleeve its entire length, position being maintained by a long key. The column is fixed in position by the handle *a*, Fig. 4, which operates a binder screw. The vertical movement is controlled by the hand wheel at the front of the base, which operates the oblique elevating shaft *b*, having its bearings in supporting brackets. The shaft actuates the elevating screw through bevel gears.

The spindle runs in bronze boxes of standard taper adjusting type, and each end is tapered to receive the collets carrying the grinding wheels. The grinding wheel at the left in Fig. 1 is generally used for backing off cutters and reamers, and usually remains permanently on

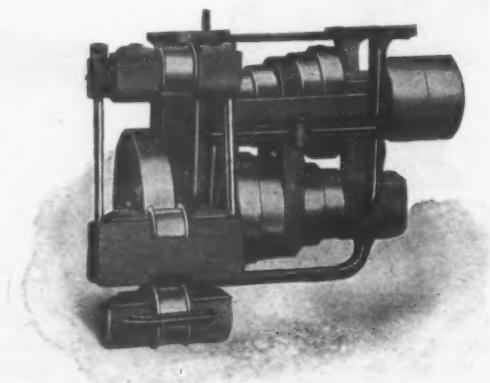


Fig. 5.—Wheel and Feed Driving Countershaft.

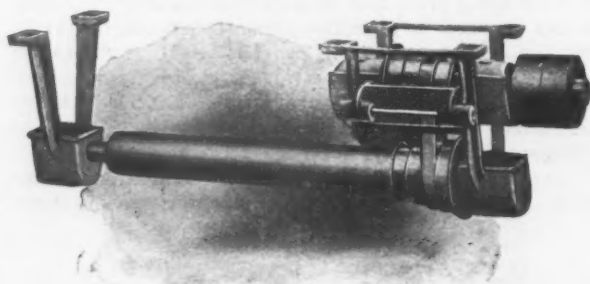


Fig. 6.—Drum Countershaft for Driving the Work.

the spindle. The other wheel is employed for all other classes of grinding, as well as for use with cup wheels for backing off cutters and reamers, this being considered the best practice when the nature of the work renders it possible.

The drive of the spindle is through the pulley *c*, Fig. 3, by a belt, both runs of which pass vertically through the opening in the gooseneck to a countershaft. This arrangement of the belt allows the spindle to be swivelled horizontally from a position parallel with the table to one at right angles to it. Graduations on the head indicate the angles of the setting, which is made through the worm gear *d* and the worm *e* by means of the hand wheel. The worm is integral with the hand wheel and is held by the cap *f*, which is part of the gooseneck and forms a journal for the worm and guard for the gear. In addition to the locking inherent in a worm and worm wheel the head is even more securely fixed by a binder.

The spindle with the collet carrying the smaller of the two wheels can pass under the gooseneck without removing the wheel, as shown in Fig. 2.

The table drive is of the standard type, but the mechanism for controlling it possesses new and interesting features. Two ways are provided for stopping the table while the machine is operating, each having a purpose of its own for convenience in doing work. The knob

located near the center of the front of the cross slide table, when pushed in, disengages the table driving gear only. This is especially useful when it is necessary to stop the table momentarily, as when calipering work, since the driving mechanism remains in readiness to resume work instantly. The action of the knob is to throw out the worm and worm wheel drive, permitting the worm and worm gear to rotate without driving the table. The knob at the left of the front of the cross slide table stops the entire table driving mechanism, by throwing the main reverse clutch into neutral position. This enables the operator to feed with the pilot wheel or with the slow hand wheel.

All hand wheels used in operating the machine are

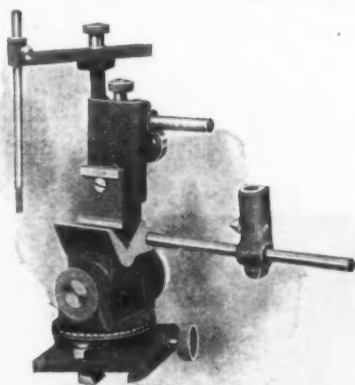


Fig. 7.—Universal Attachment.

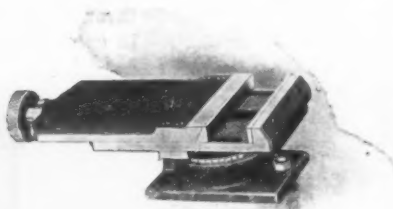


Fig. 8.—Semi-Universal Vise.

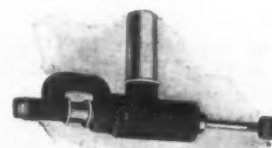


Fig. 9.—Internal Grinding Spindle.

placed at the front. The pilot wheel is used for backing off cutters, reamers and other work. The central wheel operates the table in and out cross feed and is graduated to thousandths of an inch. The right hand wheel is for feeding the table slowly by hand for any class of work, and forms a locking feed for presenting the wheel to work being ground in face chucks; the table is locked in any position, so that the pressure between the wheel and the work cannot move it. The wheel at the center of the base elevates the wheel head, as already described. The automatic feed and the pump are driven by a single belt from the main countershaft. The feed has five changes without changing the speed of the pump.

The driving of the entire grinder requires only three belts. Two from the five-speed countershaft respectively

the head is raised, and yields the belt to the head as it is lowered.

In changing from one speed to another provision is made for loosening the cone pulley belt, so that it may be shifted by an ordinary belt stick. A screw handle, fixed in the boss, seen on the side of the driving cone frame and extending down within reach of the operator, supports the driving cone frame on one side. When the screw handle is unscrewed the belt is loosened, and as it is carried by the rotating driving pulley it easily mounts or descends on the cone when touched by the belt stick. This same arrangement is applied to the drum countershaft, Fig. 6. The main drive belt is shifted in the ordinary way.

The table of the machine is designed for rigidity and maintenance of alignment to enable very accurate work. All working surfaces are protected from grit, particularly the edge used in lining up the center heads. The

top table is slotted through the center, so that work may be strapped to it when grinding is to be done other than on centers. Ample table bearing surface is afforded in two V ways, which the builders have found preferable to one V and one flat bearing as commonly used.

Several of the attachments already mentioned are shown in the remainder of the illustrations. The universal attachment, Fig. 7, is employed for backing off end mills, and for the myriad of other uses made possible by the universal movement. The semi-universal vise, Fig. 8, may be mounted on the universal attachment when work is to be ground to angles other than are possible with the vise in its normal position. The internal grinding spindle is shown in detail in Figs. 9 and 10. It will be noticed that the spindle has bearings its entire length. The oil-

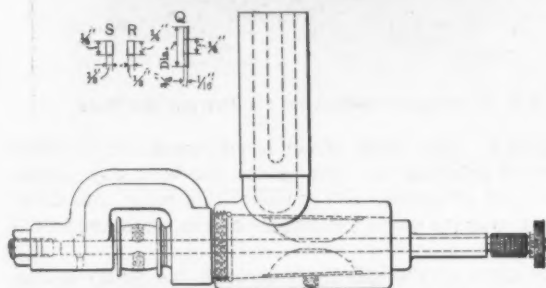


Fig. 10.—Detail of Internal Grinding Spindle.



Fig. 11.—Chuck for Internal Grinding.



Fig. 12.—Face Chuck.

drive the wheel spindle, and the table driving mechanism and pump. The third belt is from a drum countershaft and drives the work. The wheel drive countershaft gives five changes of speed and contains a device for automatically taking up or letting out the belt as the wheel head is raised or lowered. It will be seen in Fig. 5 that there are three idler pulleys at the front of the driving pulley. For convenience they may be called the lower, central and upper idlers. The belt passes up over the front of the lower idler, then under and around the driving pulley, under and in front of the central pulley, and finally back of and over the upper pulley, and down to the spindle pulley, bringing the two strands parallel. Each of the idlers is solid with its shaft, which runs in ring oiling bearings of ample surface to insure long life. The weight of the central idler pulley keeps the tension of the belt constant regardless of the duty imposed upon the wheel, and also automatically takes up the slack as

ing arrangement, including a reservoir, is such that the spindle will run for a long time without heating. Fig. 11 shows a chuck and spindle for holding work to be ground internally. The face chuck, Fig. 12, is for grinding the face of any work that can be held by a central hole, such, for example, as milling cutters.

The wheel spindle has five changes of speed, ranging from 3000 to 5000 rev. per min. The work is rotated at 100 to 400 rev. per min., five changes being provided. These speeds may be varied to suit individual shop practice. The table feed varies from 3 to 10 ft. per minute, with five changes. There is a cross feed of 11 in., and rise and fall of head of 7 in. The swivel of the table is from 0 to 45 degrees, and a graduated scale, reading in inches per foot with a maximum of 3 in., is provided at the end of the table for setting when grinding tapers. The diameter of the grinding wheel is from 3 to 8 in. The weight of the machine is 1300 lb.

The Gould & Eberhardt Spur Gear Generator.

BY HENRY R. COBLEIGH.

As long ago as 1850 the hobbing method of cutting spur gears was known. Machines operating on this principle are in use abroad, notably in Germany, but until this year this country produced no commercially successful designs. As distinguished from the present prevailing type of spur gear cutting machine, using a disk milling cutter with which but one tooth space is cut at a time, the generating machine, using a helical hobbing cutter, acts simultaneously on as many teeth as would be engaged by a mating rack corresponding to the gear being cut, and acts upon each tooth in the same way, *i. e.*, contacting first at the root circle with the flank of one side of the tooth, passing successively over the tooth curve and leaving the face at the addendum circle, to follow with the same action in reverse order on the face and flank of the other side of the tooth. In spite of all precautions to obtain the correct form of the teeth on the hob to present at the cutting line a profile similar to that of a corresponding rack, with enough excess on the tips of the cutting teeth to cut the clearance at the bottom of the gear tooth spaces, it has seemed to be impossible to produce gears that are noiseless in operation. Gould & Eberhardt, Newark, N. J., believe they have solved the difficulty in a recently patented design of hob and have perfected a gear generator, herewith illustrated, to cut spur and spiral gears by this means, and incidentally worm wheels after the usual practice.

Another distinction between the two types of gear cutting machines is that in the hobbing machine the work and cutter revolve simultaneously instead of intermittently and alternately. There is, therefore, no action corresponding to the indexing of the work between cuts. In the new machine the work is mounted with its axis vertical and the hob at some angle in a vertical plane depending upon the nature of the work, and the two are positively geared together to rotate with a definite speed ratio between them. For spur gear cutting the hob is inclined at an angle with the horizontal equal to the inclination of the thread of the hob with the hob axis, and the work is continuously rotated an amount equal to the circular pitch for each revolution of the hob. The required circular pitch, therefore, determines the lead of the hob to be selected, irrespective of the number of teeth and diameter of the gear to be cut. For spiral gear cutting the hob is placed at an angle equal to the above, plus or minus the angle of the teeth of the gear with the gear axis, according to whether it is a right or left hand spiral gear, and the work spindle and hob spindle are geared together with a somewhat different relation than for spur gear cutting, a definite retardation or acceleration of the one with respect to the other being necessary on account of the angle of the teeth. For worm wheel cutting the axis of the hob is horizontal, and the ratio of the rotation of the work to that of the hob is the same as that of the finished wheel with its worm.

Details of the Mechanism.

From the foregoing brief explanation of the principle of operation, the purposes to be accomplished by the machine will be understood; the following describes the

mechanical means whereby the required motions are effected. The forms and locations of most of the principal parts may be seen in the accompanying illustrations, of which Figs. 1 and 2 are views of the opposite sides of the machine, and Fig. 3 end and side elevations with parts lettered for identification. The power movements are the drive of the hob spindle, the feeding of the spindle head, the quick return of the spindle head, the drive of the work spindle and the feeding of the work slide. The drives of both spindles are in action for the cutting of any of the three forms of gears, but only one feeding movement is used at any one time. For spur and spiral gears the head is fed downward; for worm gears the work slide is fed toward the head. It will be the plan to take up the movements in the order as given, tracing through the transmission by beginning at the driving end in each case.

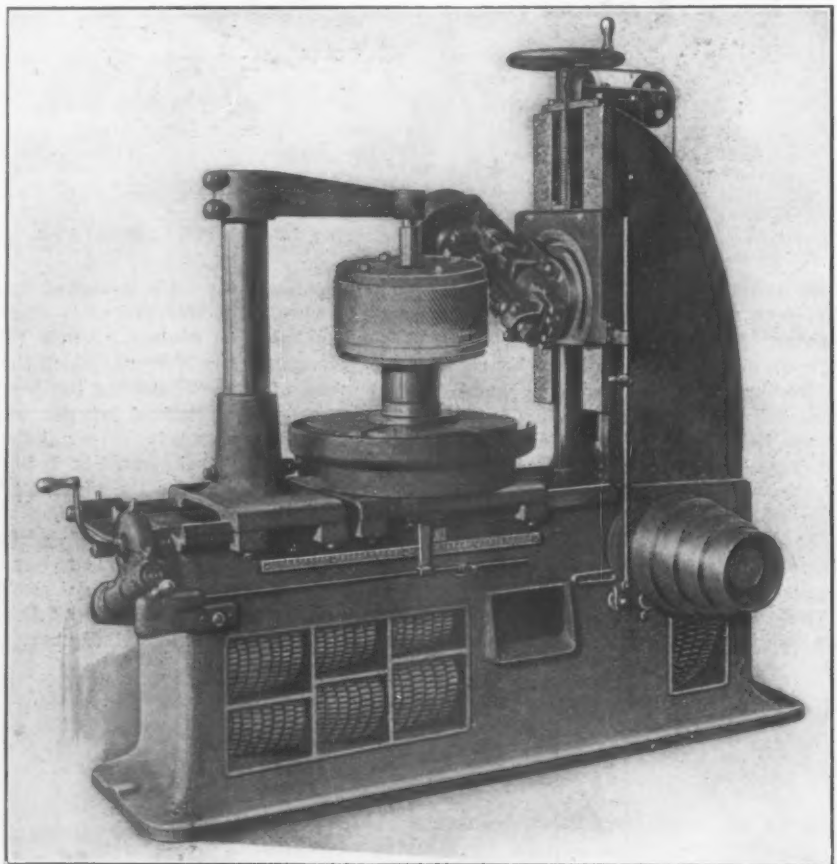


Fig. 1.—View of the Driving Side of the Gould & Eberhardt Gear Generator.*

The four-step cone driving pulley is mounted on the shaft *a*, and runs continuously in the same direction. This shaft extends transversely through the machine and within the column the drive is transmitted to the cutter spindle. Feathered to the shaft *a* are two facing bevel gears held in a slidable yoke, so that one or the other may be engaged with a bevel gear on a vertical shaft, *b*, within the column to revolve it in either direction. The gears are shifted by a lever on the outside between the cone pulley and the frame. The vertical shaft *b* is splined, and through bevel gears drives a short horizontal shaft, which travels with the spindle head. The last mentioned shaft is, in turn, connected by bevel gears at the center of the swiveling spindle head with a shaft on the latter, the outer end of which is spur gear connected at *c* to the spindle carrying the hob or helical cutter, *d*. This transmission permits the swiveling of the spindle head to any angle, but it is never necessary to swing the overhanging part *e* below the horizontal. The required

* The work on the spindle was drawn in after the photograph was taken and is in error. The work should be resting directly on the table.

angle for any setting may be had within the upper 180 degrees, so that clearance of the table never requires supporting the gear blanks up from the table. If the head is swung to the opposite side from the position shown in Fig. 3, it is still possible to obtain a downward cut by reversing the cutter spindle drive through the means already described.

Continuing to the other side of the machine, the main shaft *a* carries a worm meshing, a worm wheel loosely mounted on the horizontal longitudinal shaft *c*, but adapted to be clutched to it. At the rear of the machine this shaft is connected through interchangeable gears mounted on sweeps to drive the shaft *h*. The drive may be either through the spur gear on the end of the shaft *e*, the intermediate *f* on one sweep, the intermediate *g* on the other sweep and the spur gear on the end of the shaft *h*, or in the same way with the use of only one intermediate gear. Through tumbler gears, controlled by a lever which may be seen in Fig. 2, the shaft *h* is connected with a shaft inside the frame that is connected by feed change gears to a parallel shaft carrying a worm mesh-

the shaft *a*, and connected to it by the spur gears shown in Fig. 2. Hand return or adjustment of the head is accomplished when the power feed or return is disengaged from the screw *q*, through the hand wheel *s* at the top of the machine which is mounted directly on the screw.

The drive of the table spindle is identical with that of the down feed of the head up to the shaft *h*. This shaft is extended toward the front of the machine and is splined so that it may drive, through spur gears, a worm meshing the worm wheel on the work table. It is the required speed of the table, according to the pitch of the gear to be cut, that determines the combination of change gears selected to connect the shafts *e* and *h*. These same gears control the down feed of the cutter head, and this is an advantage, since the proper feed per revolution of the gear being cut, irrespective of its diameter, is obtained without altering the feed change gear combination, except for different materials and pitches.

The horizontal feed of the table is again through the same train of mechanism as the down feed of the head. The shaft within the base which carries the worm driv-

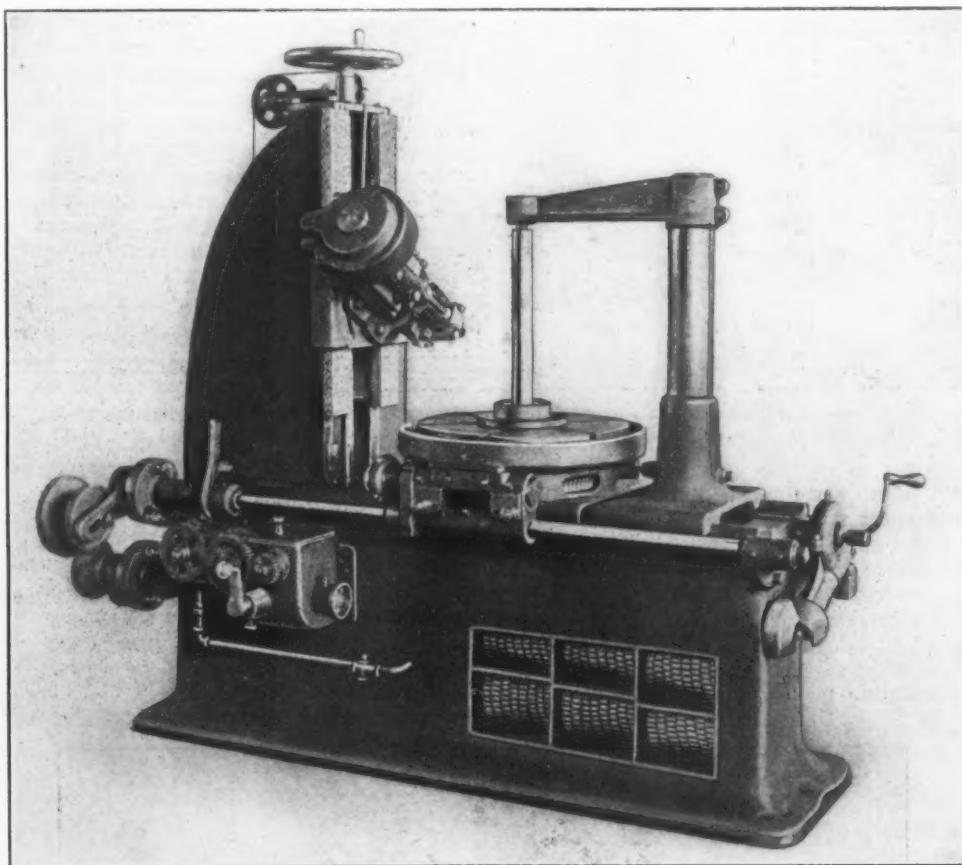


Fig. 2.—View of the Working Side of the Gould & Eberhardt Gear Generator.

ing with a worm wheel on the lower end of the cutter spindle feed screw *q*. The feeding motion is always downward, so that the screw is in tension when the hob is cutting, and the reverse which is possible through the tumbler gears secures this regardless of what combination of gears, *e*, *f*, *g* and *h* is in action. When the cutter has passed completely across the face of the work the feed is automatically stopped by the contact of a bracket on the head slide with an adjustable stop, *r*, on a vertical rod, the downward movement of which throws a clutch disengaging the worm wheel from the screw *q*.

Since the spindle head is counterweighted but little power is required to return it for the next piece of work, and it is allowable to use the same screw *q* for the purpose, even though when driven in reverse direction it is under compression. The train of mechanism is the same as for the down feeding, except in its connection with the main driving shaft *a*. By shifting the clutch lever shown on the gear box on the side of the base in Fig. 2, the horizontal shaft *e* is disconnected from the worm wheel driven by the worm on the shaft *a*, and is connected to another worm wheel running at higher speed and in the reverse direction, being driven by a worm on a shaft parallel to

ing the worm wheel at the lower end of the screw *q*, extends the length of the base and is indicated by *k* in the end elevation. At the front through bevel gears this shaft drives a short shaft with a drop worm at the end *l*, adapted to engage a worm wheel on the horizontal feed screw *m*, which moves the table from or toward the column. Variable feed is secured through the feed change gears mentioned in connection with the down feed of the cutter head. The drop worm is held in engagement by a plug at the end of the rod *n*, and when the feed has progressed the desired amount, the bracket *p* on the table saddle encounters an adjustable stop *o*, withdrawing the plug from the drop worm handle, allowing it to fall of its own weight. With the worm disengaged, the table may be adjusted by hand with the crank shown. There is a graduated collar on the screw and a scale on the side of the bed, which with reference to a vernier attached to the table slide, facilitates very accurate setting for center distances and proper depth of tooth.

General Features of Construction.

Elimination of unnecessary parts and the provision of resistance to deflection of the working parts under pressure, were special considerations in the general de-

sign of the machine. Strength and rigidity are particularly noticeable in the main frame, the base and column of which are in one piece, and in the cutter head and work table. Both of the latter are made with as little overhang as possible, so that the bending strains when at work have a minimum leverage, and are resisted by broad bearing surfaces on the ways of the frame. The table saddle is held down to its guides by straps, and ample surfaces on the saddle support the rotary table

justment of the work without disengaging or disturbing other parts.

Large diameter work is clamped to tee slots in the table and the work mandrel is inserted or ejected by a differential nut and revolves with the table. An outboard support increases its stiffness when a wide faced gear or a stack of gears is being cut. The base of the column supporting the outboard arm is secured to ways on the bed and to the work saddle, so as to move with the latter.

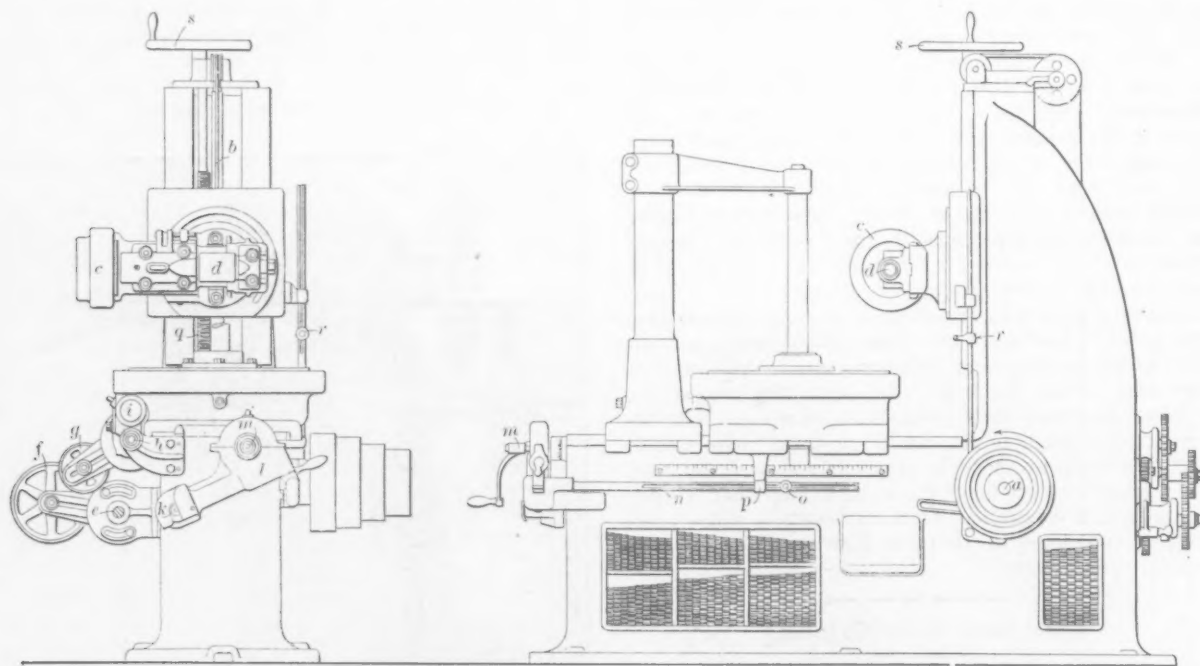


Fig. 3.—End and Side Elevations, Showing the Transmission of the Various Drives and Feeds.

under its outer rim as well as under the worm wheel, which is a part of the same casting as the table. Anti-friction washers under the table reduce the friction when taking heavy cuts.

The worm wheel is in two parts, divided in its central plane, so that one-half may be rotated with respect to the other in the process of hobbing to distribute any minor inaccuracies and produce a practically perfect wheel. This construction also permits of a convenient means of compensating for unequal wear in the subse-

Pinions with long hubs can be held close to the table by a chuck in the bottom of a central opening in the table. The pan around the work table for catching chips and oil is stationary, so that they are not scattered over the floor when the table is revolving, but are gradually worked to an opening in the bed on the side toward the column.

The cutter spindle and its bearings are hardened and ground and the cutter is adjustable axially to assist in matching it to work to be recut, or to substitute fresh cutting edges for dulled ones. A vernier scale reading in

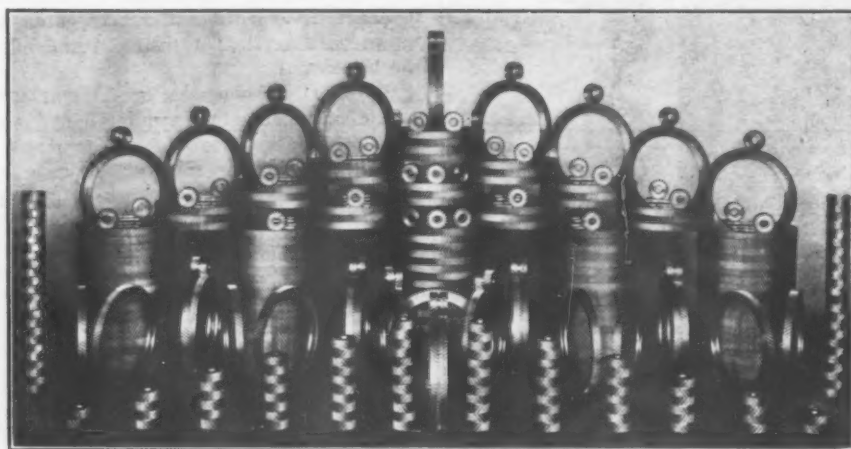


Fig. 4.—A Large Order of Spiral Gears Executed on the Gould & Eberhardt Gear Generator.

quent use of the machine. A double-threaded hardened and ground worm drives the wheel with a ratio of 60 to 1, so that even when cutting small pinions the worm is not compelled to run at excessive speeds. The worm is mounted in a swinging bracket pivoted on the saddle, which allows for disengaging the worm and wheel and for taking up the wear between them. A micrometer axial adjustment of the worm is useful, particularly when recutting spiral gears, to give a fine circumferential ad-

minutes indicates the setting of the swiveling cutter head. The helical cutters used have exclusive features, on which patents are pending, and are claimed to make it possible to cut noiseless gears.

Any number of like spur or spiral gears up to a combined face width of 10 in. may be cut at one operation; worm wheels, perforce, can be cut only one at a time. Of all gears, the maximum diameter which can be cut is 24 in. and the maximum pitch 5. The machine occupies

a floor space of 42 x 76 in. and is 67 in. high overall. It is the intention to put out two other sizes, one larger and one smaller.

Advantages of the Hobbing System.

In conclusion it seems appropriate to draw attention to some of the advantages peculiar to gear forming machines of the hobbing or generating type. One of the most important is that fewer cutters are necessary, since one hob answers for gears of all diameters having the same circular pitch, whereas with a single disk cutter it is not possible to cut more than one size of gear except with only approximate accuracy.

In the cutting of spiral or helical gears the hobbing machine is vastly more convenient than the milling machine and overcomes the difficulties that have been met with in the present usual ways of cutting these gears. The simplicity of the hobbing machine commends it for just such work, and removes a deterrent to a more extended use of these types of gearing. The principal objection to the plain spiral wheel is the end thrust; the combination of two opposed spiral gears in what is known as a herringbone gear annuls this disadvantage. Wheels of this kind work very smoothly, as the teeth always have two points touching in the plane of the axes, and are particularly preferable to ordinary gears for pinions with few teeth. From the form of the teeth they are claimed to be stronger, and their operation is noiseless. With the advent of a machine for producing them more cheaply and in quantities there is excellent prospect for their more general adoption. Fig. 4 is an exhibit that is interesting in this connection, as it represents a single order recently completed by Gould & Eberhardt for an automobile manufacturer.

Two New Besly Grinders.

Except for the manner in which they are driven, the two latest spiral disk grinders built by Charles H. Besly

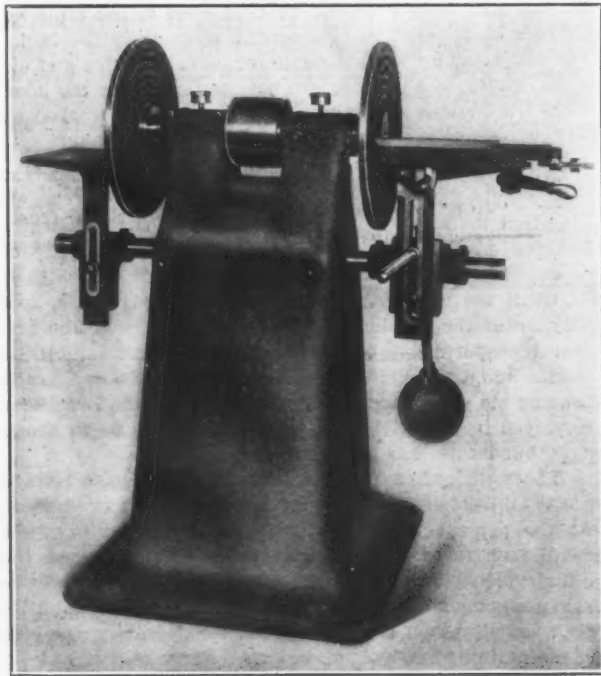


Fig. 1.—The No. 8 Spiral Disk Grinder Built by C. H. Besly & Co., Chicago.

& Co., Chicago, are similar. Fig. 1 shows the No. 8 belt driven grinder, and Fig. 2 the No. 41 motor driven grinder, which is a response to the demand for a disk grinder operable by alternating current. Both machines are intended for general manufacturing purposes and each is fitted with one plain tilting table and one lever feed swinging table. The following description of the No. 8 machine applies, with easily discernable exceptions, to the motor driven machine as well.

The driving pulley is $7\frac{1}{2}$ in. in diameter and wide

enough to take a 6-in. belt. It is mounted at the center of a $1\frac{1}{4}$ -in. crucible machinery steel spindle, $25\frac{1}{2}$ in. long, running in cast iron split bearing bushings, each 8 in. long. The disk wheels at the outer ends of the spindle are 18 in. in diameter by $\frac{5}{8}$ in. thick, but the machine will swing 20-in. disk wheels. Hardened steel thrust collars of large area, which bear against the flanged ends of the right hand bearing bushing, take the end thrust, and end adjustment is accomplished by a threaded collar on the spindle just under the rim of the driving pulley.

The rocker shaft is $2\frac{1}{2}$ in. in diameter by 47 in. long and supports the tables in long bearings protected from dust by recessed collars, which clamp the rocker shaft for taking the end thrust. The top of the plain table is $7\frac{1}{4}$ x $10\frac{5}{8}$ in. and that of the lever feed table 8 x 10 in.,

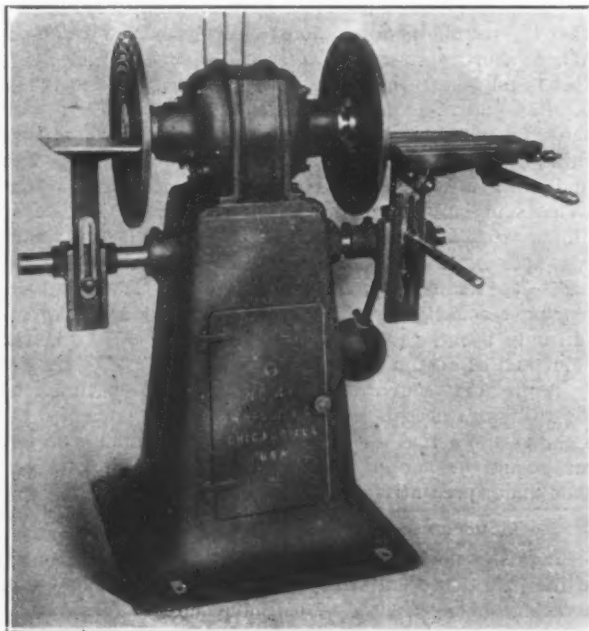


Fig. 2.—The No. 41 Alternating Current Motor Driven Besly Spiral Disk Grinder.

with two 9-16-in. tee slots and one 9-16-in. keyway for attaching angle plates or other work holders. The latter table is moved to and from the disk wheel by a lever carrying a pinion meshing a rack on the bottom of the table, giving a leverage of 12 to 1. A micrometer stop screw reading in thousandths of an inch enables grinding to exact dimensions without repeated calipering. Both tables have vertical adjustment and may be tilted from the horizontal.

Ordinarily the wheels are run at 1500 rev. per min., which corresponds to a countershaft speed of 625 rev. per min. The floor space of the bed casting is 29 in. square and the required operating floor space, allowing for the countershaft, is about 5 x 10 ft. The height from the floor to the center of the spindle is 42 in. and the weight, including the countershaft, is 2000 lb. In addition to the countershaft the equipment regularly furnished includes a press for attaching the paper or cloth circles to the metal disk wheels, two extra spiral grooved disks and accessories, such as cement, oil, glue pot and brushes, wrenches and a complete assortment of Helmet spiral paper and cloth circles.

The No. 41 machine is equipped with a 5-hp. alternating current motor adapted to run on 110, 220, 440 or 550 volt, 60-cycle, two or three phase current. The disk wheels are of the same diameter as those of the No. 8 machine, but are usually run at 1800 rev. per min. The bearings are phosphor bronze and ring oiling. Any of the various styles of work tables furnished on other Besly spiral disk grinders can be supplied for this machine. The following are the principal dimensions that differ from the No. 8 machine: Floor space of base, 28 in. square; overall length of spindle, $23\frac{1}{4}$ in.; diameter of spindle in bearings, $1\frac{1}{8}$ in.; length of spindle bearings, 5 in.; height to center of spindle, 40 in.; operating floor space, 5 x 5 ft., and weight complete, 1400 lb.

Pig Iron and Coke Shortages.

Investigation by the New England Foundrymen's Association.

The Weight Committee of the New England Foundrymen's Association has made a searching investigation of the subject of shortages of pig iron and coke, going for its information to the consumer, the shipper and the transportation companies. The committee has established that shortages are more frequent than they were a year or two ago, and that in not a few cases in New England net losses from this cause have been important enough to become a factor in costs of production. Letters received from users of coke and pig iron in other parts of the East, unsolicited by the committee, indicate that the trouble is not confined entirely to New England. Where shortages formerly averaged up with overweights this is no longer the case. Speaking broadly, the investigation places the blame for the new condition not upon the shippers, but upon the transportation companies, both railroad and steamship. The system of weighing coke and iron is not satisfactory. The railroads, whose weights at shipping point are accepted as the basis of billing coke, are not sufficiently thorough in their methods, and, while pig iron is carefully weighed by the furnaces, the transportation companies have no system of placing responsibility for losses during shipment, which can only be accomplished by weighing at each transfer point and at destination.

A pregnant source of discrepancy has been found in the railroad's acceptance of the tare weight stenciled on a car as the actual weight empty. In weighing coke the car should be actually weighed empty, which is never done under present methods.

Experiences of New England Foundries.

Inquiries made of all the New England foundries as to the prevalence and amounts of shortages brought out a variety of experiences. Most have suffered from shortages of iron; a lesser number from shortages of coke. A Providence foundry had an aggregate shortage of 67,000 lb. in 5,195,484 lb. billed to it, which amounts to 1.3 per cent. Another foundry had a shortage of 16,805 lb. in 12 carloads of pig iron. In one instance there was a shortage of three and one-half tons in a single carload. Still another foundry sustained a net shortage of 21,530 lb. between January 1 and April 3 on rail and water shipments, while its all rail shipments showed an overweight of 4725 lb. during the same period. On the whole, there is more trouble when shipments are by water than when they are all rail.

A Boston consumer has carefully tabulated his receipts of iron and coke. Twelve carloads of one kind of iron, received from January 8 to March 13, aggregating 316 tons, showed a net shortage of 3768 lb., an average of 314 lb. a car. With another class of iron, 23 carloads, totaling 575 tons, arrived January 3 to February 19, netted a shortage of 25,411 lb., an average of 1104 lb. to a car. This discrepancy between shippers' and consignees' weights is emphasized by the fact that one carload ran 8165 lb. overweight. Only two other cars were over, one 95, the other 115 lb. Some of the shortages on individual cars were 2480, 3090, 9185, 2093, 2202, 5085, 1775, 1165, 1055 and 1965 lb. These shipments were rail and water. In 16 carloads of coke received by this company from January 15 to February 23, totaling 644,500 lb., the shortage, found in all but four cars, netted 25,055 lb., an average of 1565 lb. to a car.

This foundryman's shortages on coal shipped by schooner were large. One cargo of 570 tons netted a loss of 43 tons, and one of 686 tons was 22 tons short. Conditions governing this method of water shipment are such, however, that considerable discrepancies are expected.

These cases are typical of the experiences of the foundrymen of New England as found by the Weight Committee. More extreme instances are reported, but they generally were easy of adjustment with the shipper or transportation company. It should be said, however, that the committee has been informed by foundrymen that

settlements of claims for shortages have been more difficult to obtain than formerly.

The Remedies Suggested.

The remedies designed to do away with friction between consumer, shipper and transportation company, by definitely fixing responsibility, as determined in a general way by the Weight Committee, are as follows:

The transportation companies, both rail and steamship, should install adequate weighing facilities at each point where shipments are transferred from one transportation company to another, so that responsibility for discrepancy between billed and delivered weights could be determined beyond a doubt. At the point of delivery the transportation company should either establish scales of its own or accept the consignee's weights, he to provide satisfactory scales for the purpose.

In connection with a system of weighing at points of transfer and delivery, iron should be weighed by the railroad at point of shipment, following the system now employed with coke, but improved in method of determining tare, so that the railroad might base its responsibility on its own weights, instead of on those of the shippers. But, unless the system of weighing at intermediate points be adopted, no good could come of accepting railroad's weights for iron, for it would add to the confusion rather than tend to remove it.

A comprehensive weighing system would immediately create better methods of handling iron in transfer from car to vessel, from vessel to dock and from dock to car again, because transportation companies would have to effect accurate results to protect themselves from responsibilities placed directly upon them. It is well known that under present conditions there have not only been losses in transit, but shipments of iron have been mixed, usually in connection with steamship transportation, so that while one consignee has lost iron, another has received it with iron of another kind, the mixture causing loss in the foundry because of its nature.

In weighing coke at point of shipment, the railroad company, whose weights are accepted by shipper and consumer as the basis of billing, should weigh each car empty and clean to get the actual tare weight, paying no attention to the stenciled tare weight of the car, which has proved to be too low in a very great majority of cases.

Until the weighing system recommended as the real solution of the problem shall have been adopted, the several transportation companies handling iron and coke should adopt the policy of an assumption of losses, each bearing his proportionate expense. This method has been employed in the settlement of some disputes as to shortages, but its use has not been common.

The foundrymen would contribute their share toward the establishment of a comprehensive weighing system. At the present time certain foundries pay railroads a small sum for weighing cars. In at least one case the foundrymen of an important city have offered a steamship company to stand the cost of installing scales on its dock, and to pay a reasonable sum for defraying the cost of maintaining the system, but the offer was declined.

A Complicated Subject.

The subject of shortages, which was originally discussed in connection with the committee's work in *The Iron Age* of September 5, last, is a complicated one, as the committee has found. The two items of coke and iron shipments must be considered separately to an extent, because of the wide difference in the methods of initial weighing of the materials at point of shipment.

Pig iron is weighed by the shipper, and the railroads and steamship companies accept the shipper's weights. Coke is weighed by the railroad after loading by the shipper, and the weights are accepted by shipper and consignee as the basis of billing.

There is a vast difference in the methods of the rail-

roads on the one hand and the furnace on the other in weighing material. The furnace employs the most exact system possible. The car is weighed empty and again when it is loaded, always uncoupled from a train. The difference between weight empty and weight loaded should be the accurate weight of the iron.

The railroad does not weigh the car empty in the process of determining the amount of coke in a shipment. The tare weight, as stenciled on the car, is accepted as exact weight empty, and is deducted from the weight of the loaded car. The difference is the amount that appears in the shipper's bill to his customer, and is also the amount upon which the freight bill is fixed.

The investigation by the Weight Committee has brought the matter of tare weights into much prominence, for it plays a very important part in the question of shortages in coke shipments. It has been demonstrated that the stenciled tare weight is usually too low, especially where a car has been in use for some time. In the making of repairs, in the installation of new couplings or brakes, including air brakes, and in other ways, the weight of a car is increased. But the stenciled figures are seldom if ever changed. Careful tests, made during the progress of the investigation have proved this. Then again, the railroad does not take the same care to free a car of ice and snow as it should where it is accepting the stenciled weight, nor does it make correction for the fact that a car is soaked with rain.

A statement prepared by a New England foundryman shows how almost every pound of a total net shortage of 5600 lb. in eight cars of coke was accounted for by the difference between the railroad's tare weights and the actual weights of the cars empty as found by tested track scales at the foundry. Were it not for the fact that one of the cars was weighed at its destination during a heavy rainstorm, in the open, greatly increasing its weight, the gross weights of the cars, as fixed by the railroad and the consignee, would have nearly agreed. There would have been no shortage if the stenciled tare weights had been correct. The results of these tests are given in the following tabulation:

Date.	Car number.	Shipping record.			Difference in shipper's weight gross and ours.	Marked of car, stenciled.	Consignee's record.				
		Gross. Pounds.	Tare. Pounds.	Net. Pounds.			Actual tare. Pounds.	Tare shortage. Pounds.	Gross weight. Pounds.	Net weight. Pounds.	Actual shortage. Pounds.
June 15.....	1,977	63,800	*26,800	37,000	10	26,800	27,400	600	63,810	36,410	590
June 24.....	2,760	62,700	*27,000	35,700	110	27,000	27,260	260	62,810	35,520	180
July 1.....	1,782	76,700	*31,100	45,600	270	31,100	32,330	1,230	76,970	44,640	960
July 9.....	1,649	65,100	*27,100	38,000	130	27,100	27,510	410	64,970	37,460	540
July 25.....	1,309	70,700	*29,100	41,600	730	29,100	29,810	710	69,970	40,160	†1,440
August 5.....	706	72,700	30,000	42,700	270	31,100	30,270	270	72,970	42,700	...
August 15.....	1,455	69,600	*29,500	40,100	1,240	29,500	31,170	1,670	70,840	39,670	†1,330
August 24.....	1,694	65,700	*24,500	41,200	20	24,500	24,980	480	65,720	40,740	460
		547,000						5,660	548,060		5,500

* Shipper's tare same as marked weight.

† End door found open.

‡ Car weighed loaded and empty after heavy rain.

In commenting upon the table the foundryman stated that the one car, No. 706, on which the railroad took actual tare—that is, the weight of the car empty—was the only one heavier than marked, the stenciled weight being 30,000 lb., while the actual weight was 30,270. With this car the stenciled weight would have favored the customer. With the other seven cars it favored the railroad and shipper.

Carelessness is believed to be another important factor in the weighing of coke, combined with the failure to uncouple the car before weighing. There is a marked difference under certain conditions between the weights of the coupled and uncoupled car. The railroad weighs coke while the cars are in motion, which must result in a greater percentage of error than if the cars were standing.

The Attitude of the Transportation Companies,

in their answers to the committee's letters inviting suggestions on the general subject of shortages, appears to be that it is impossible for them to make errors; that losses within the limits of the respective lines of each

could not occur. When complaint is made of shortages of pig iron the company puts the onus on the shipper or on some other company that has also handled the material. The companies express no disposition to co-operate in a change from existing conditions. They do not consider it feasible to adopt a system of weighing at transfer points and at points of delivery.

The steamship companies assert that their systems of handling iron are entirely adequate. The foundrymen do not agree to this, and neither do the shippers, to judge from statements in their letters to the Weight Committee. When iron is stored aboardship, shipments to different consignees are separated in the hold by a few boards stuck loosely between piles. At the dock each pile is handled by its own gang of men, the steamship companies explain. With one company one gang owes its individuality to a bit of rope yarn tied in the button-hole of each of its men, while the members of the other gang have no such adornment. The rope yarn gang handles one pile, the other gang handles another. This is taken to prove that there can be no mixing up of shipments.

It has been suggested that coke and pig iron be sold f.o.b. the consignee's works, which would shift from customer to shipper the burden of recovering from transportation companies damages for losses in transit. This would be a good thing for the consumer, but it is exceedingly doubtful if the shippers would ever agree to such a radical innovation. The argument is made that the shippers have far greater influence with the railroads and steamship companies than the foundrymen, and would, therefore, be able to secure more advantageous terms in the settlement of disputes of this nature. Certain New England gas companies buy their coal f.o.b. their own yards, their own weights being accepted by shipper and railroad.

Chairman J. L. Anthony and Secretary W. J. Breen of the Weight Committee have received a number of letters from shippers of coke and iron, in answer to inquiries regarding the matter of shortages, and many of them contain interesting comment and suggestion.

A Case Which Shows the Loss Was Made in Transit.

To show the loss of pig iron that can be made between the scales of the shipper and those of the consignee on all rail shipments, the case is cited of four cars arriving at a New England foundry, totaling in excess of 3½ tons short, delivery weight determined on track scale by consignee and checked by delivering railroad company where the shipper employs the wholly adequate system of weighing described in his letter to the committee, which would seem to prove that the loss occurred during shipment. The shipper wrote:

We have spared no expense in equipping our plant with a scale system which we know to be as nearly perfect as it is possible for any system to be. Our plant is equipped with two standard 100-ton track scales, one of the Buffalo and one of the Fairbanks type. Each scale is being constantly checked against the other to insure accuracy, and our weighing is in charge of two experienced weighmasters, who personally attend to the weighing of each car.

In addition to checking the scales against each other, they are inspected on the first of each month by an expert from the manufacturer, who in writing certifies that they are absolutely correct and in first-class working order, these tests being made in addition to frequent tests by our own

men. Our scales are therefore constantly kept in perfect adjustment, and any variation of over 50 lb. in weight is the occasion for a complete overhauling of the scales. The beam of each outfit is equipped with a stand automatic device for printing on a scale ticket the weight of the loaded and unloaded car, thereby eliminating the possibility of all clerical errors.

Each car which leaves our plant is first swept broom clean and then weighed light, detached at both ends from the rest of the train, the scale being carefully inspected to make certain that there is no binding and that it is free in every part. The light weight is then taken and the weight recorded automatically on the scale ticket, after which the car is loaded and again weighed, detached at both ends from the rest of the grain, in the same manner as before.

The need of accurate scales for entirely selfish reasons, apart from the natural desire to treat customers fairly, may be realized from the fact that the furnaces employ the same scales for weighing materials of which they are the buyers. In the letter just quoted in part is the further statement that "the subject of weighing is one of great importance to us, as our incoming shipments of raw materials amount to an immense tonnage each day, and the slightest inaccuracy in our scales would mean a considerable loss to ourselves on the materials we are daily receiving."

Southern Methods of Weighing.

The traffic manager of a Southern company writes, with reference to methods of weighing and shipping pig iron from the Southern furnaces:

We have employed a scale man on a good salary whose duty it is to look after and keep our scales thoroughly in balance. In addition to this we compare his tests once a month with the railroad scale man, as a matter of check. Our cars are weighed empty before loading; they are then placed at the wharf and the iron is moved to them in barrow loads and when the car leaves the wharf it has an estimated tonnage from these barrows. It is then carried back over the track scales. The cars are cut loose at both ends, weighed carefully by the weighmaster and weight checked by the yard foreman. If there is very much discrepancy in the estimated weight and that arrived at on the last weighing of the car over the scales, the question is then and there looked into and if we cannot satisfy ourselves the cars are taken to other scales and weighed.

With reference to loss of pig iron in transit, we have had some complaints that cars reaching destination would be found without seals and doors open. We followed this question up and had cleats placed behind the doors and nailed with two or three nails, sufficient to hold the door together.

In shipping iron to New England States, which is 90 per cent. by rail and water, we beg to call your particular attention to the number of times the iron is handled en route. When it reaches Norfolk it is handled from the car to the boat; in New York from the boat to the barges. It is then lightered to river points and even across to Brooklyn, and from there transferred either to cars and reshipped by rail, or unloaded from barges to wharf, and from the wharf to foundry it is moved in dray loads.

In all my experience in handling shortage claims with consignees, I have found more errors or discrepancies in weights where the iron was handled by drays. You can readily see that 10 or 15 wagon loads to one car will make that many chances of error against our one.

Not very long ago I made a trip to all of the Eastern ports and from there to New York on a boat which carried several carloads of our iron. I watched the transfers and believe that quite a number of the shortages coming from Eastern iron shipments occur largely when the iron is weighed in dray lots. We have a few inland customers who use this method of weighing, and in every case we have found that care was not taken by competent men with this class of weighing. I feel that if all the iron moving to these points moved in sealed cars and was weighed on thoroughly tested track scales, the cars weighed empty after unloading, you would not find so many shortages.

Pennsylvania Shippers' Views.

A Pennsylvania furnace, producing Bessemer and foundry irons, stated in its letter:

We have found that at times stealing of pig iron from the cars is engaged in at different localities. It is impossible, however, to have the shipments followed up, for the purpose of discovering such irregularity, as the expense would of course be enormous, and we have to rely very much upon the employees and the detectives of the railroad company to protect the property while in transit. Of course a greater measure of protection would be afforded were all shipments made in box cars sealed before leaving the furnace yard, but it is a very difficult matter to secure just the kind of equip-

ment that is wanted for the shipment of iron at any time, and frequently the foundries would be shut down, if they insisted upon shipment being made in a certain class of cars, as there would then be nothing else for us to do but to wait until the kind of cars that we wanted were furnished us by the railroad.

It seems to be the universal rule of shippers of ore, coal and coke to make their contracts on the basis of railroad track scale weights at the point of shipment to govern in all cases, and practically all of the material that we buy is paid for on the basis of weights at point of shipment. We re-weigh a good part of this material as it arrives, and we find some differences, but those in our favor about offset the differences in favor of the shipper, and unless we can prove that there has been loss in transit, or that there has been incorrect weighing at point of shipment, we do not follow out the differences in every case, as we think that there must necessarily be a certain variation between the weighing of any two scales, and we believe that this same policy is pursued by a number of others.

Of course it is important that we should all endeavor to work for the placing of favorable conditions on the railroad bills of lading, so that we would have reasonable assurance of consideration of any claims that we or the consignees might make on the railroad for the loss of pig iron for which it is responsible.

Another Pennsylvania producer of pig iron wrote:

We wish to say that we have very few complaints from our customers regarding shortages. What few complaints we have had are almost without exception from New England consumers, and we long ago arrived at the conclusion that there probably is a loss in transit on shipments going to New England.

We do not know what method is used in weighing at other furnaces, but we have perfected our own system to a point where there is hardly any possibility of an error on the part of our weighers. Every car is weighed carefully, loaded and empty, detached in each case from other cars, and the weighing is checked up separately by two different men. Further than this, our scales are regularly tested about every 15 days by the railroad test car, so that these scales cannot help being in the best of condition at all times. We have worked carefully to have our weights absolutely correct, because we realize the importance of this end of our business.

A Criticism of Customers' Methods.

Another phase of the shipper's and railroad's side of the question is brought out in a letter from a Pennsylvania furnace company, in which it is stated:

Our experience has been that many of the cases of claims for short weight are due to the customer weighing out in draft of 1 or 2 tons, and totaling the number of loads necessary to unload the car. No customer should expect to have the total so obtained compare with the weight as furnished by the shipper. There will invariably be a shortage, which is more apparent than real.

The total result obtained from the weighing of a dozen or more cart loads, or wagon loads, is not to be compared in accuracy with the one weighing on the railroad track scale in good order. It is a repetition of the old story of the grocery man weighing out in pound packages his barrel of sugar. He invariably runs short, because of the draft, however small, to each pound, aggregating a considerable tonnage, if repeated often enough.

We do not consider claims by the consumer as justified when the iron is weighed out in this manner. Our experience would lead us to believe that there is more or less stealing of iron from the cars while they are in transit, or when the cars are in the railroad yards.

Should shortages develop, a report should be made immediately on receipt of the car to the agent located at the point of destination. Under the laws of Pennsylvania the railroad companies are not held liable for any claims for damages or losses unless the claims are made within two weeks of arrival at point of destination. A bill covering the shortage, accompanied by a sworn affidavit of the weight of the iron received and the weight of the iron called for by the bill of lading, should be forwarded to the freight claim agent of the railroad delivering the iron. This will enable the railroad company to trace promptly the travels of the car, and ascertain whether it has been delayed in such a manner as to account for any loss of pig iron in transit.

Small differences of a few hundred pounds in a carload lot can scarcely be avoided, owing to the differences in scales, as well as the personal equation of the weighmaster. The shipper is likely to hear of any deficiencies, but he is not always informed of the cars that run in excess of the weight at which they are billed.

Regarding Shortages in Coke.

An important Pittsburgh company, operating in coke, sets forth the position of that industry as to shipments in the following letter:

All coke is naturally sold to the consumer f.o.b. ovens subject to railroad weights, the railroad company being

accepted by both parties as an independent and impartial judge of the quantity contained in the cars. Now if the railroad reports to us that the weight is a certain amount we must necessarily be governed accordingly, and our bill must be paid to us on this basis.

The railroad company, however, is not in the same position, as it is charging freight for an amount which it claims is correct, and should a car arrive at its destination containing a less amount of coke than the railroad has stated, claim should be made against it and enforced to secure the difference in the freight rate, and if proof can be shown that the railroad company has corrected its billing and a previous agreement to this effect entered into with the ovens it would seem to be no more than fair that the ovens themselves should make an adjustment on a basis of the corrected weight, as shown by the railroad.

This is one side of the story, but the other is equally strong. In weighing cars, for example, it is impossible for any railroad company to push cars through singly, but they are weighed by the train load, and if the bumper happens to be up the weight shows lighter than it ought, and in this way the ovens are the losers. If the bumper is down, it is, of course, a little heavier. Now, we can all talk of claims to be made against the railroad, but there is absolutely no question of the fact that the railroad often hauls half a ton or a ton more coke than it has charged for, and the consumer has the benefit, while the railroad and the ovens are the losers.

If as above mentioned, the ovens wish to enter into an agreement with them that they would give credit when the railroad issues corrected billing, then an agreement should be made by the consumer who is going to be the judge of the weight that he would pay the railroad company, and also the ovens at any time when the cars contain more than the railroad weight shows.

You undoubtedly appreciate the fact that the present system is a very good one, and wherein a man may lose on one car he will gain on the next, and that the general average is very fair. Furthermore, the amount of time spent in weighing cars in getting up these claims and pushing them more than consumes the rebate which might be secured on occasional cars. We are no more favorably disposed toward the railroads than the average shipper, but we do think there are cases where they get the worst of it, as well as the consumer, not mentioning the fact that we are often large losers ourselves (this, of course, always being overlooked by the customer).

An interesting side light on the manner of weighing coke at the ovens and the responsibilities of shippers is contained in an extract from a letter from a Pennsylvania manufacturer of coke, which follows:

The railroad company requires that coke shall be loaded at the ovens, both doors to each car tightly closed and the car weighed (by the railroad company) at its nearest scales, and by deducting from the gross weight of loaded car the stenciled light weight of the car, the net weight of the coke is obtained and the freight charge is assessed, and the railroad company's scale agent then reports the weight to the shipper accordingly.

You will see, therefore, that the question is one beyond our control, and we are obliged to sell our product upon the basis of the railroad company's scale weights, as outlined above. We will state, however, that where there is a shortage and the consignee can establish his claim with the railroad company on account of error in weighing the car, and the railroad company corrects its billing, then we are more than willing to abide by the said correction and change our invoice accordingly.

When the loss is in transit, it is obvious that the railroad company or companies are to blame, and should be held responsible. However, in this connection, since the rule by the railroad company requiring all doors be closed before moving the coke has been established, it seems to us that loss in transit should be minimized, except, of course, in the case of wreck, and in such a case we think there is seldom difficulty in substantiating a claim against the railroad.

A Massachusetts New Factory Law.—The Commonwealth of Massachusetts has passed a law requiring every factory in which machinery is used to instal material for rendering first aid to the injured. Local boards of health are held responsible for the enforcement of the law and violators of it are subject to a fine of from \$5 to \$500 for every week of violation. The law has met with no opposition to speak of on the part of manufacturers, it having already been learned that equipment of this nature in a factory conserves to the interest of the employer. Many employers throughout the country have anticipated the passage of such a law, and the experience of all is that rather than an expense the installation of first aid equipment is an economy and has a very good influence upon

the employees. To meet such a requirement, an outfit known as Johnson's First Aid Cabinet, has been brought out by the makers of Red Cross supplies, Johnson & Johnson, New Brunswick, N. J. Many of the Massachusetts boards of health have indorsed this cabinet as the required equipment. It is sold directly by the makers when not obtainable locally and offers efficient materials in a convenient, economical and serviceable manner, together with a manual of instruction as to what to do in all cases of injury and how to do it.

September Exports and Imports of Iron and Steel.

According to the September report of the Bureau of Statistics of the Department of Commerce and Labor, both exports and imports were somewhat under those for August. In the case of exports, the decrease was no greater than can be accounted for by the shorter month. The decline in the imports was proportionately heavier. The total value of the exports of iron and steel and manufactures thereof, not including ore, for September was \$16,830,833, against \$17,587,181 in August. The value of the imports in September was \$2,902,301, against \$3,393,255 in August.

Taking the commodities for which quantities are given, the exports in September totaled 115,869 gross tons, against 118,944 tons in August, 121,400 tons in July, 92,529 tons in June, 91,513 tons in May and 132,332 tons in April. The following table gives details of the exports of these commodities for September and for the nine months ending with September in 1907 and 1906:

	September.		Nine months.	
	1907.	1906.	1907.	1906.
	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig iron.....	6,213	4,529	60,385	60,415
Scrap	635	1,006	22,602	9,274
Bar iron.....	1,567	4,228	19,756	41,985
Wire rods.....	946	125	8,965	5,677
Steel bars.....	9,114	2,676	55,851	22,425
Billets, blooms, &c....	1,249	8,023	62,293	170,462
Hoop, band, &c.....	870	387	5,901	3,377
Steel rails.....	34,679	18,201	253,249	250,278
Iron sheets and plates.	3,107	1,985	28,508	10,506
Steel sheets and plates.	4,173	7,998	63,940	68,483
Tin andterne plates.	751	228	8,957	10,622
Structural iron and steel	12,148	9,285	102,187	83,891
Wire	12,475	13,844	116,325	126,293
Cut nails.....	294	586	5,018	5,960
Wire nails.....	4,071	3,455	34,821	37,828
All other nails, including tacks.....	620	475	5,807	3,704
Pipes and fittings.....	22,957	12,321	123,631	110,653
Totals.....	115,869	89,352	976,196	1,021,833

Turning to the imports, the quantity figures for September were 40,682 gross tons, against 51,700 tons in August, 75,406 tons in July and 60,960 tons in June. The following table shows details of the exports of these commodities for September and for the nine months ending with September in 1907 and 1906:

	September.		Nine months.	
	1907.	1906.	1907.	1906.
	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig iron.....	29,030	26,711	449,147	229,876
Scrap	2,416	135	24,969	10,438
Bar iron.....	3,301	1,931	30,341	25,607
Rolls	463	854	3,289	3,376
Hoop, band, &c.....	29	61	1,384	9,942
Billets, bars and steel in forms n.e.s.....	1,091	1,289	11,465	14,977
Sheets and plates....	196	190	2,998	2,630
Tin andterne plates.	3,463	5,812	46,706	37,756
Wire rods.....	625	1,243	13,299	13,444
Structural iron and steel	68	852	2,067	25,704
Totals.....	40,682	39,078	585,665	373,750

The total value of the exports of iron and steel and manufactures thereof, not including ore, for the nine months ending with September was \$146,231,080, against \$126,698,883 in the corresponding period of the previous year. The corresponding figures for imports are \$31,698,020 and \$24,376,887. The quantity of iron ore imported in the nine months ending with September was 972,340 gross tons, while the exports for the same period were only 157,843 tons.

The Wm. H. Bristol Electric Furnace.

Its Use in Connection with a Pyrometer for Determining the Recalescent Points of Steels.

In a new portable laboratory outfit Prof. William H. Bristol has combined his recent patented quartz lined electric furnace with his recording electric pyrometer, described in *The Iron Age* November 8, 1906, in such a way that the temperature inside the furnace may be controlled and automatically recorded on a chart. The complete equipment as illustrated in Fig. 1, is particularly designed for determining the recalescent points of steel and for hardening small tools. The various parts are compactly mounted as a unit, which may be set up in any convenient location, or even used on an office desk and the necessary electric current supply can be taken from an ordinary direct current lighting circuit.

The electric furnace itself is of simple construction,

rheostat may be adjusted so as to maintain the desired temperature.

The recording pyrometer, mounted on the same standard, has its platinum, platinum-rhodium thermo couple fitted in the furnace and its cold junction, the point where the flexible leads begin, inserted in a beaker of ice water. This thermo couple measures the temperature inside the furnace by generating a small electric current, which actuates the recording arm of the instrument, making a continuous record automatically on the circular chart, while it revolves by clock work. The semi-transparent smoked chart is normally out of contact with the recording point, hence offers no interference to the free movement of the arms and a special vibrating device brings the sensitive surface of the chart against the pointer at half-second intervals. In this way a perfectly accurate record is obtained directly, without the use of relays or other complicated devices. A chart of special graduations, covering a range of 2000 degrees F., as shown in Fig. 3, is furnished with this outfit, and to record very

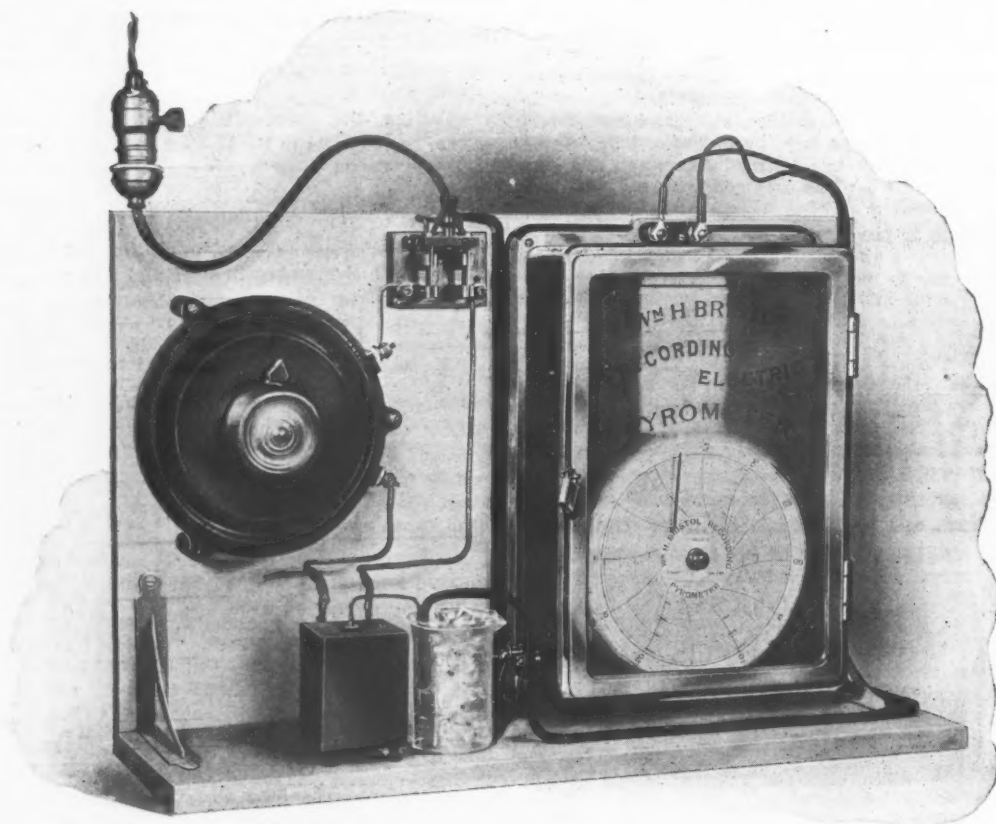


Fig. 1.—A Laboratory Testing Set Designed by Wm. H. Bristol for Determining the Recalescent Points of Steels.

and has, as its special feature, a lining of fused quartz, which makes it possible to turn on the full current suddenly and thus to heat up the furnace quickly without danger of cracking. When the furnace is heated to a bright red a cold piece of steel may be introduced without injury to the quartz lining, which serves as a perfect insulation between the metal and the heating coils. Fig. 2 shows a form of this furnace which has been designed for tempering small tools and for heating soldering irons. A rheostat may be used to regulate the temperature, but for some applications this is dispensed with, as for instance in the use of the furnace as a soldering iron heater with direct lamp plug connection. In that case, the winding of the heating coil is so arranged that the maximum temperature of the furnace will be correct for continuous service and not so high as to oxidize the soldering iron. For many other applications, as for hardening tools and for laboratory work, both a rheostat and a pyrometer are used with the furnace to great advantage.

For determining the recalescent points of various kinds of steel the electric furnace is connected in circuit with a rheostat, as in Fig. 1, so that after the full lighting current has been turned on, bringing the furnace up to a bright red heat on the inside almost immediately, the

quick variations in temperature is arranged to make a complete revolution in one hour.

This laboratory unit is very convenient for measuring the recalescent points of steel; that is, the temperatures at which a molecular transformation occurs, below which steel cannot be hardened. To obtain a record of the recalescent points of a lot of steel a test piece of cylindrical form about 7-16 in. in diameter and about 1½ in. long is used, having a hole ¼ in. in diameter and ¾ in. deep drilled in its end. After the electric furnace has been heated up by turning on the current this test piece is inserted into the top furnace and the tip of the thermo couple is introduced into its hole. As the steel is gradually heated up by the furnace the rising temperature inside is recorded on the chart. After the temperature has been raised as far as desired the piece of steel may be withdrawn from the furnace without disturbing the couple, and as the steel cools its falling temperature will also be recorded on the chart. The records of these rising and falling temperatures will be shown as curves on the charts, on which the recalescent points will be easily observed. Fig. 3 shows a chart with four of these curves made with test pieces of four different materials. No. 2 was wrought iron, and its heating and cooling curves show no points

where the rise or fall of temperature was retarded. No. 7, which was 0.0125 carbon steel, shows two of these points, one while the temperature was increasing and one while it was decreasing. The first was recorded dur-

of each sample was finished in less than 15 min. after starting with a cold piece of steel, and that the critical points of the heating and cooling curves were recorded within 7 min. of each other. It has been found that the curves obtained for these small test pieces with this outfit have the same characteristics and give the same results as those obtained by using large masses of metal which would require considerable time for heating and cooling.

From the curves and recalscent points shown on the chart it is evident that the temperature which would be right to harden one kind of steel would not be right to produce good results with another kind of steel. By making tests such as these the manufacturer can find out what temperature is best for hardening each particular lot of steel. The old opinion that steel can be satisfactorily hardened by guessing at its temperature is fast giving away to the realization that the value of a piece of steel depends very much upon the heat treatment it receives.

The special laboratory outfit and the electric furnace described are manufactured by Wm. H. Bristol, 45 Vesey street, New York City.

The Decline in Ocean Freight Rates.

The causes of the marked decline in ocean freight rates during the last 30 years are explained in Bulletin No. 67, just issued by the Bureau of Statistics of the Department of Agriculture, prepared by Frank Andrews, Assistant Chief of the Division of Foreign Markets, entitled "Ocean Freight Rates and the Conditions Affecting Them." In 1876 wheat was carried from New York to Liverpool for an average of 16.8 cents (gold) per bushel, and the rate in 1906 averaged only 3 cents per bushel. On salt beef the mean rate from New York to Liverpool by steamers was \$1.42 per tierce in 1876, while in 1906 it was but 54 cents. The average ocean rate charged 30 years ago on wheat from San Francisco to England was more than double the present rate. Reductions in the case of cotton rates were also large, amounting in 20 years to more than 50 per cent. in a number of instances.

The causes of reductions in ocean freights are largely connected with the increase in size of ocean vessels and with economies in the handling of ships and their cargoes. Both liners' and tramp vessels are now built much larger than in former years. The cargo of a tramp ship not infrequently includes the product of 15,000 acres of average wheat land or the cotton yielded by twice that area, and it would take two such cargoes to fill the hold of one of the larger freight liners. Changes are taking place in the construction of sailing vessels as well as steamships. The former are not only built larger than in past years, but their sails are so altered as to require fewer seamen to operate them, and besides manual labor is being supplanted by machinery for handling sails, anchors and cargo. However, in spite of the progress of economy in building and operating sailing vessels they are being crowded out by steamers. The capacity of all sailing vessels, both home and foreign, carrying the exports and imports of the United States, has declined 50 per cent. in 30 years. Prior to 1881 the capacity of sailing vessels in this trade exceeded that of steamships, but in 1906 the tonnage of steamships was nearly 11 times that of sailing vessels.

President Wallace of the American Ship Building Company announced last week that the South Chicago yard would be abandoned, so far as new construction is concerned. It will still be used for repair work, but with a much smaller force. Much of the machinery will be sent to the other plants. The labor troubles at this yard are the occasion of the action. About 1800 men have been employed at South Chicago.

The sale of the property of the National Wire Corporation, New Haven, Conn., to the American Steel & Wire Company has been formally ratified under the bankruptcy act, the price paid being \$650,000. The new owner will proceed to put the plant into shape and will begin manufacturing at an early date.

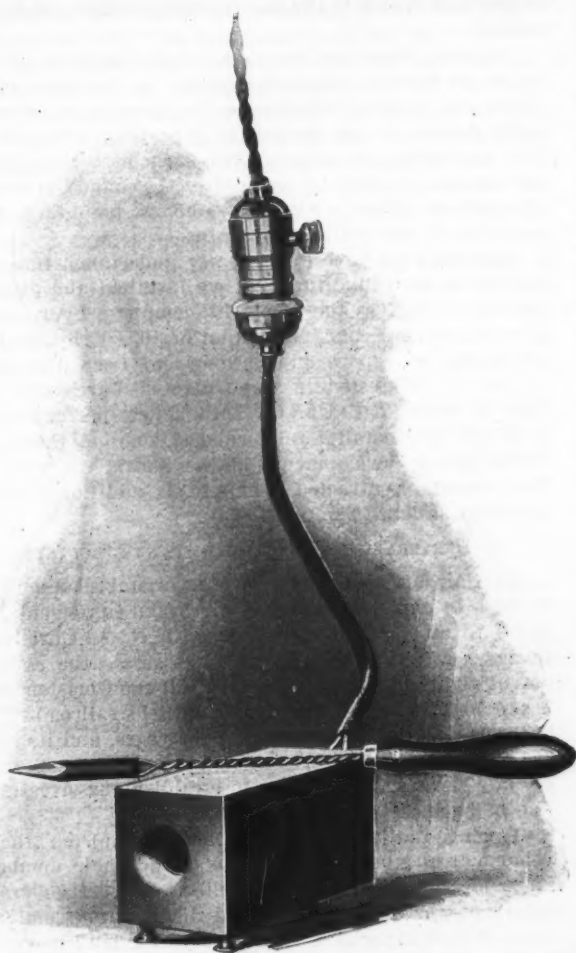


Fig. 2.—The Quartz-Lined Electric Furnace for Commercial Uses.

ing heating, at about 1300 degrees F., and the other during cooling, at about 1240 degrees F. This shows that to harden this lot of steel a temperature higher than 1300 degrees F. should be used. Test piece No. 19 was a low



Fig. 3.—A Pyrometer Record Showing Recalscent Points of Steel and Iron.

carbon steel having different recalscent points, and No. 18 was cast iron which showed a point of retardation for cooling only.

From Fig. 3 it will be observed that the complete test

The Allis-Chalmers Company.

In connection with the sixth annual report, President W. H. Whiteside makes a supplemental statement which is much more encouraging to the stockholders than the showing for the fiscal year ending June 30. The supplemental statement, which covers subsidiaries, gives the following figures for the quarters ending June 30 and September 30:

	April-June quarter.	July-September quarter.
Gross profit.....	\$780,277.18	\$852,836.49
Less general and selling expenses, interest on bonds, &c.....	579,919.21	563,926.60
Net profit.....	\$200,357.97	\$288,909.89

The net profits for these six months thus aggregated \$489,267.86, a continuous monthly improvement in earnings having been experienced from April, at which time the company first began to receive benefits from the newly developed lines of machinery built in its enlarged West Allis plant.

Turning to the report for the fiscal year, figures are available to present the following comparative statement of net earnings for 12-month periods:

	1907.	1906.
Profit on operations of the year after deducting expenses of manufacturing and selling, interest, dividends on preferred stock of the Bullock Electric Mfg. Company, and provision for doubtful accounts.....	\$1,226,242.00	\$648,161.15
Less charges for maintenance, repairs and renewals.....	854,503.32	754,928.39
Less depreciation on buildings and machinery.....	253,987.42	281,654.61
Less interest on bonds, loans and notes payable.....	505,049.40
Operating deficit for the year.....	\$387,298.14	\$388,421.55

The Address to the Stockholders.

From the accompanying statement by President Whiteside the following extracts are taken:

During the past year much attention has been devoted to systematizing the work of the engineering department: improving and simplifying standard designs, thereby reducing cost of production and installation without impairing efficiency or sacrificing quality.

Development work in our several new lines of machinery, namely, gas engines, hydraulic turbines, steam turbines, turbo-generators, induction motors, transformers, &c., has been carried to practical completion, and has been extraordinarily large because of the wide range in the standard sizes and types adopted. The uniformly successful results that have been attained in practical operation, and demonstrated by various tests, are gratifying in the extreme, and it may be safely stated that the accomplishments of the past year mark an important step in advancing the engineering reputation of the company and strengthening its position in the trade.

STEAM TURBINES, GAS ENGINES AND HYDRAULIC TURBINES.

Probably the most important work which has been brought to a commercial consummation has been in the development of our steam turbine units, the unique features of which are fully protected by various patents owned by the company. In 1903 we designed and built our first turbo-generator, and its detail has required no material change—a strong testimony to the scientific accuracy of the principles first adopted. Sizes ranging from 500 to 7500 kw. have been completed and tested and the success of these units under actual operating conditions is thoroughly established. Notwithstanding our recent advent into this field our sales of steam turbines have already reached nearly 100,000 kw. normal capacity and compared with the previous year show in orders booked an increase of \$800,000.

In gas engines substantial progress has been made. Each of our standard sizes has been designed, constructed and installed during the year and our first gas engines are in successful operation. Orders to August 1, 1907, for the horizontal, twin tandem and double acting type of gas engines, ranging in capacity from 500 to 5000 hp., aggregate 189,350 hp. One of our notable contracts covers the electrification of a steel plant requiring gas engine

electrical units of an aggregate capacity approximating 60,000 hp. This order is believed to be the forerunner of a great many others of similar character, because of the great saving effected by this means in the utilization of gases produced in the manufacture of steel and hitherto wasted.

Another important contract, which has been awarded us by an electric railroad company, is for traction purposes the largest installation in America of electrical units driven by gas engines to operate on producer gas. The equipment comprises three horizontal twin tandem gas engines of 1500 hp. each, directly connected to 1000-kw., 3-phase, 25-cycle alternators of our manufacture and includes all sub station apparatus.

Although we have but recently undertaken the manufacture of hydraulic turbines, we installed and placed in operation during the year 10 complete hydro-electric plants, having a combined output of 105,000 hp., and it is gratifying to report duplicate orders from the largest companies interested in these plants. Particular reference is made to the highly satisfactory performance of a 32,000-hp. installation furnished one of the largest water power developments in the South, for which we have recently contracted to supply six additional units of identical design.

OTHER BRANCHES OF THE COMPANY'S BUSINESS.

The air brake department was organized about July 1, 1906, to exploit the sale of air brake equipments, pursuant to an arrangement made with N. A. Christensen, inventor, whereby this company possesses the exclusive patent rights to manufacture and sell the Christensen air brake to urban and interurban electric railroads. This brake has been extensively used for years, and its merits are widely recognized. A reasonable degree of success has already rewarded our efforts to establish ourselves in this line of business.

During the past year we have completed the development and manufacture of a considerable number of large alternating current and direct current generators, rotary converters, induction and direct current motors in all sizes and capacities, transformers for both power and lighting service, street railroad motor equipments and electric hoists; all of which are in successful operation.

It is worthy of note that notwithstanding the large inroads made by the steam turbine and gas engine, our Corliss engine business continues in steady volume, particularly for the medium and smaller sizes. Standardization of the products of the pumping engine department has been carried to a greater degree than ever before, securing for our pumping engines the same manufacturing and commercial advantages applicable to power engines. We have just completed the largest flour mill ever constructed in Canada, having a daily capacity of 4500 barrels. The contract covered an installation complete with power house and all machinery equipment. In saw mill machinery the supremacy of our commercial position has been fully maintained. Never before has such activity been witnessed in the development of mining, which has now assumed a more important position than ever among the country's industries. As usual, most of last year's important orders for mining machinery were placed with us, and the outlook is encouraging for a steady and satisfactory volume of business. Our sales of rock crushers and cement making machinery, which for years have shown a steady growth, exceeded those of any previous year and represent 50 per cent. of the country's total business in these lines. Foreign orders booked show an increase of 45 per cent. over the previous fiscal period. Arrangements have been concluded during the past year for a more systematic and energetic exploitation of our products in foreign countries, particularly Japan, China and South America.

THE YEAR'S RESULTS AND THE OUTLOOK.

The results for the year have not been as satisfactory as expected, due to a combination of circumstances beyond our control, including the general strike of molders throughout the country; the failure of contractors to complete buildings on time; the delayed delivery of equipment for the new shops; and the large expense contingent upon the organization of the new plant and necessary de-

velopment of new lines of manufacture. On the other hand, such improvements in methods have been effected that with an increase to over 9000 in the number of workmen, being more than 38 per cent. for the year, the rate of production per employee per annum is now over \$2000.

Beginning with the last quarter of the year most of the adverse conditions had been overcome and the company entered an era of steadily increasing net earnings, which have continued during July and August of this year. This important result, with the beforementioned development and growth, the eminent position of the company in many lines, and the large volume of orders on hand, aggregating over \$15,478,000 on June 30, 1907, is evidence of future prosperity.

The consolidated balance sheet, as of June 30, 1907, is as follows:

Assets.	
Real estate, buildings, plant, machinery, patterns, drawings, good will, &c.....	\$34,401,752.92
Additions during the year, consisting of West Allis extensions and additions to other works..	2,626,367.68
Total capital assets.....	\$37,028,120.60
Bonds and shares.....	254,200.00
For the development and the purchase of rights for the manufacture of new lines of apparatus, including steam and hydraulic turbines, gas engines and other machinery	\$662,321.76
Further expenditures during year ending June 30, 1907.....	453,420.66
	1,115,742.42
Discount and commission on bonds.....	2,614,000.00
Notes and accounts receivable	\$5,004,032.33
Less, discounted.....	353,934.83
	\$4,650,097.50
Stocks of merchandise, material and work in process, at cost.....	8,739,354.45
Unpaid bond subscriptions due July 1 and September 3.....	*1,057,920.00
Cash	889,828.24
	15,337,200.19
Profit and loss—Balance.....	229,816.95
Total.....	\$56,579,080.16
Liabilities.	
Allis-Chalmers Company—	
Preferred stock (dividends at the rate of 7 per cent. per annum accumulated from February 1, 1904)	\$16,150,000.00
Common stock.....	19,820,000.00
	\$35,970,000.00
Bullock Electric Mfg. Company—	
Preferred stock (dividends at 6 per cent. per annum, guaranteed by the Allis-Chalmers Company)	\$1,170,000.00
Common stock (the \$1,499,400 remainder of the total authorized issue of \$1,500,000 is owned by the Allis-Chalmers Company and deposited with the American Trust & Savings Bank, Chicago, trustee, under the mortgage securing the bonds of the Allis-Chalmers Company)	600.00
	1,170,600.00
First mortgage 5 per cent. bonds issued	\$12,854,000.00
Less, in treasury.....	2,398,000.00
	10,456,000.00
Loans and notes payable (partly secured by the deposit of treasury and syndicate bonds to the amount of \$3,457,000).....	4,873,431.61
Accounts payable	2,815,226.09
Reserve for depreciation.....	1,293,822.46
Total.....	\$56,579,080.16

* Since paid.

The Annual Meeting and Election.

The annual meeting, which had been twice postponed, was held October 24 in Jersey City, N. J. It was the desire on the part of the management to be able to set before the stockholders the favorable showing since April which delayed the annual meeting and the presentation of the year's report. The retiring directors were all re-elected. After the stockholders' meeting the directors organized by returning to office all of the present incumbents. In August the board was increased from 15 to 18 members and is constituted as follows:

William W. Allis, Milwaukee; Lahman F. Bower, Milwaukee; Elbert H. Gary, New York; Charles MacVeagh, New York; William A. Read, New York; Cornelius Vanderbilt, New York; Edward D. Adams, New York; Alexander F. Banks, Chicago; Edmund C. Converse, New York; Mark T. Cox, East Orange, N. J.; Joseph S. Neave, Cincinnati; Henry Woodland, Milwaukee; Charles Allis, Milwaukee; George Bullock, New York; Herman W. Falk, Milwaukee; William V. Kelley, Chicago; Max Pam, Chicago; Walter H. Whiteside, Milwaukee. Mr. Whiteside is president; L. F. Bower, first vice-president; Henry Woodland, second vice-president and treasurer; W. W. Nichols, third vice-president and secretary; W. A. Thompson, comptroller; M. C. Miller, assistant to the president; Max W. Babb, assistant secretary and attorney; George A. Brewster, assistant treasurer and assistant secretary.

The Milliken Receivership.

August Heckscher, William L. Ward and J. Van Vechten Olcott, receivers in bankruptcy of Milliken Bros., Inc., New York, obtained leave from the court November 1 to continue the business until April 1 next, and the time for the corporation to put in an answer was extended to January 15. The report of the accountants shows liabilities, \$7,034,992, of which \$3,000,000 are secured, and assets, \$7,668,772. The chief liabilities are mortgage bonds and interest, \$3,065,000; wages, \$44,048; notes payable to banks and brokers, \$1,192,100; to contractors and vendors, \$119,166; notes payable and current accounts to Foster Milliken, \$773,101; estate of E. F. Milliken, \$99,489; H. S. Manning, \$352,721; mechanics' liens, \$184,406, and estimated allowance for damages for breach of contracts, &c., \$400,000. The principal items in the assets are land at Staten Island and Tremley Point, N. J., \$1,178,634 book value; steel mill plant and equipment, \$4,341,223 at cost; fabricating works, \$822,363; erection equipment, \$88,507; engineering equipment, \$33,077; materials, \$762,915; uncompleted contracts, net investment, \$164,866; cash, \$64,439, and accounts receivable, \$167,618.

The receivers found 64 contracts on hand when they were appointed, and have been able to proceed with practically all. The total contracts amounted to over \$4,000,000, exclusive of that for the Pennsylvania Railroad terminal station. The corporation had collected on them \$2,226,365, and had expended \$450,000 in excess of the amounts collected. The receivers have collected in cash up to October 29, \$822,138, and \$1,071,550 remains to be collected on completion of contracts. The receivers have made contracts for \$425,000 new work. On October 29 they had cash on hand, \$209,947, and accounts receivable, \$62,356, and they owe on accounts payable \$50,000. The cash balance will be increased, it is estimated, by \$250,000 by collections on contracts nearing completion. The receivers have no loans outstanding.

The United States Circuit Court of Appeals at St. Louis, November 2, rendered a decision in the suit brought to test the Minnesota law which bars from the courts of that State all corporations which have not taken out a State license. By the opinion of the Federal Court the law recently passed by the Minnesota Legislature cannot make void any contracts now existing between foreign corporations. The decision does not relieve any such corporations of penalties under the State law, but significantly declares that the power of the Federal courts was not granted by State law and cannot be revoked or restricted by it.

The William B. Pollock Company, Youngstown, Ohio, advises us that press reports to the effect that important improvements and large additions would be made to its plant are untrue. No important improvements or extensions are planned at this time. This company is builder of steel plate construction, from ¼ to 2 in. thick, for blast furnaces and steel works, and also makes a full line of rolling mill machinery, and is sole manufacturer of the P. T. Berg cinder cars.

The Liberty Portable Hand Power Shears.

A line of special portable hand power shears for cutting plates, bars and structural shapes without deforming the profile, is offered by Schuchardt & Schutte, 136 Liberty street, New York. Three different types are manufactured. The universal shear is intended for cutting plates any width and length, and flat, round and square bars, angle and T sections; the plate and bar shear is capable of cutting plates of any width and length, and flat, round and square bars, and the profile shear will cut flat, round and square bars and angle and T sections. With special knives odd profile sections can be cut. All of these shears are adapted for cutting miters. As a line entire the shears are remarkable for their capacity and

handle and carries at its lower end, where it is pivoted on the end of the projected arm of the movable member, a segment pinion engaging a circular rack fitted to oscillate on the frame. The quicker and less powerful movement of the rotary member is effected with all pawls and ratchet levers disengaged, and the circular rack locked to the frame, so that a downward pull on the lever produces a rotation of the cutting blades. For the more powerful leverage the circular rack is disengaged from the frame, so that it slides freely, and the pawl shown on the pivot of the operating lever is engaged with ratchet teeth on the frame. This pawl is mounted on an eccentric stud, so that the downward movement of the lever handle produces a slight shifting of the pawl, sufficient to move the shear arm one tooth space. On the return stroke the ratchet teeth on the swinging lever prevent the spring of the material from forcing the shear blade back while

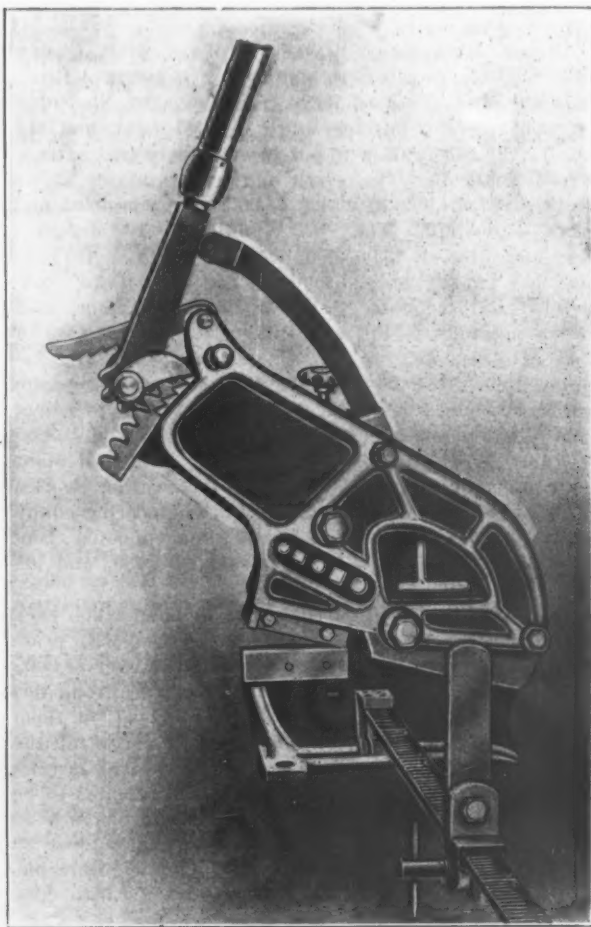


Fig. 1.—The Liberty H-VII Universal Hand Shear.

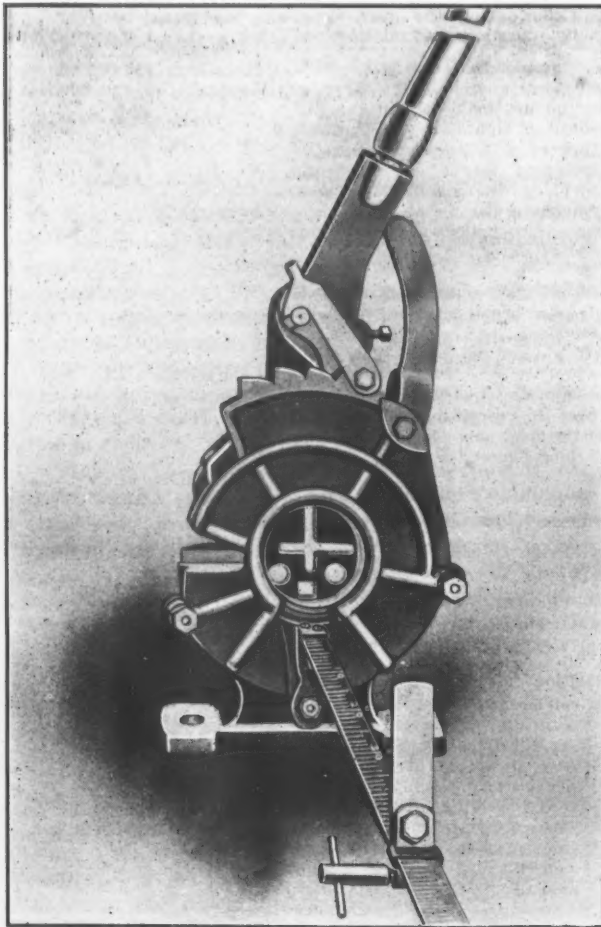


Fig. 2.—The Liberty F-IV Profile Hand Shear.

the great variety of work they can handle. The shears are of steel construction throughout, which contributes to lightness of weight, making them readily portable, and at the same time strong enough for all work within their capacity.

Each of the shears consists of two essential parts, the fixed frame and the rotating member, which are similar in form and are pivoted together with their opposing faces in intimate contact. The fixed and the movable members carry similar and interchangeable knives. The partial rotation of the movable member produces a cutting action which is part shearing and part twisting, and has been found to be especially effective. The support given the work on the two sides of the point where the cutting takes place prevents the deformation of either cut part and produces an exceedingly clean cut.

Fig. 1 shows an example of the universal Liberty shear, this being the size known as No. H-VII. The action of the knives in this shear and others of its type is illustrated in Figs. 3, 4 and 5. This shear is compound geared, giving either a quick cutting motion or a slower and more powerful one, according to the size of the work. The lever at the top of the machine is operated by a long

a new hold is being taken. Four movements of the operating lever are enough to shear any section within the capacity of the machine.

When the operating lever is thrown to its extreme upward position as illustrated in Fig. 1, it contacts with a lever which throws open the knives of the angle and T iron shear, as shown in the diagram, Fig. 3. As soon as the operating lever moves away from the knife opening lever, the knives automatically close down on the work in the position, as shown in Fig. 4, and the cutting proceeds after the manner indicated in Fig. 5. These same diagrams also indicate the action of the bars and plate blades.

Fig. 2 illustrates the Liberty profile shear, which is somewhat different in the principle of its action, the bar and structural shape shears being nearer the center, and an even more effective twisting action is secured in the shearing cut. The rotary member is operated entirely by pawl and ratchet after a principle somewhat similar to that of the more powerful movement of the universal shear, and is easily to be understood from Fig. 2. As there illustrated the lever is shown locked in its upper position for the purpose of drawing the shear knives open

during the insertion of work; the action of the knives is illustrated in Figs. 6, 7 and 8; Fig. 6 showing the knives open; Fig. 7 the knives adjusting themselves before cutting, and Fig. 8 the action of the knives during cutting.

The universal Liberty shear H V, not illustrated, is similar to the one shown in Fig. 1, except that it is single geared only, and is intended for lighter work. It has a capacity for plates up to $\frac{1}{4}$ in., flat bars up to $\frac{3}{8}$ in., round bars up to $\frac{1}{2}$ in., square bars up to $\frac{1}{2}$ in., and angles and tees up to $2 \times 2 \times 9$ -32 in. Its approximate weight is

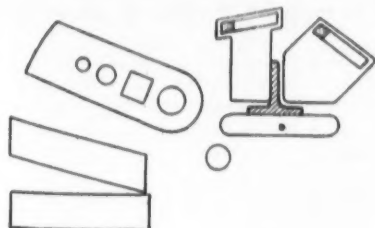


Fig. 3.—The Knives Open.

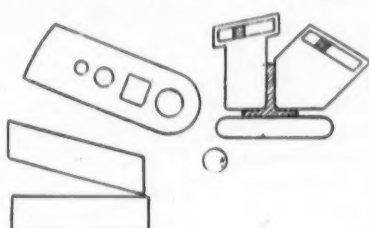


Fig. 4.—The Knives Closed.

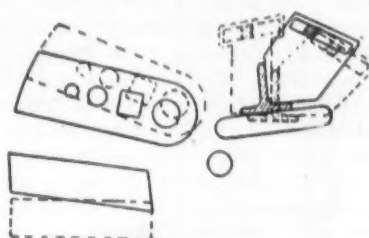


Fig. 5.—The Knives Cutting.

Action of the Knives in the Universal Liberty Shear.

165 lb. The universal Liberty shear H VII, the one illustrated, will cut the following: Plates up to $\frac{3}{8}$ in., flat bars up to 19-32 in., round bars up to 1 3-16 in., square bars up to 1 in. and angles and tees up to $2\frac{3}{4} \times 2\frac{3}{4} \times 11$ -32 in., and weighs approximately 375 lb. Three larger sizes of universal shears are built, the largest cutting 23-32-in. plates, 1-in. flat bars, 1 $\frac{3}{4}$ -in. round bars, 19-16-in. square bars, $4 \times 4 \times \frac{1}{2}$ in. angles and tees, and weighs approximately 1035 lb.

The plate and bar Liberty shear is not intended to cut structural shapes, but only plates, flats, rounds and squares either at right angles or with a miter. The maximum sizes are, respectively, 5-16-in. plates, $\frac{1}{2}$ -in. flat bars, 1-in. round bars, 15-16-in. square bars, and the weight is 265 lb. The profile Liberty shear is built in four sizes, the smallest cutting $2\frac{3}{8} \times 11$ -32 in. flat bars, 23-32-in. round bars, 11-16-in. square bars, $2 \times 2 \times 9$ -32

proved waterway, but its absolute necessity. In all plans for improvement of inland waterways the Ohio Valley is interested. But its first interests is in the Ohio River, and in making plain the fact that its complete improvement would not only redound to the benefit of Ohio Valley interests, but to the transportation interests of the entire country.

"During the fiscal year ending June 30, 1906, Ohio River steamers carried more than 14,000,000 tons of freight and more than 4,000,000 passengers, and the tonnage and the passenger traffic would more than quadruple in a decade with 9 ft. in the Ohio, from Pittsburgh to Calro."

The McCall Ferry Power Company, building a mammoth dam at McCall Ferry on the Susquehanna River.

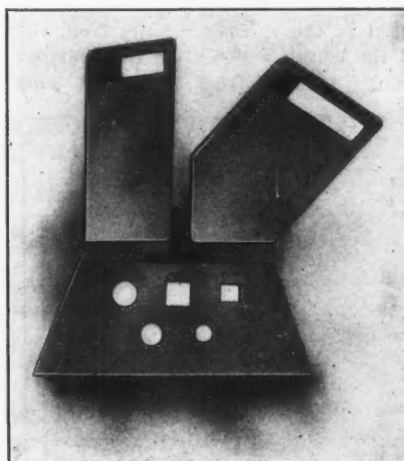


Fig. 6.—The Knives Open.

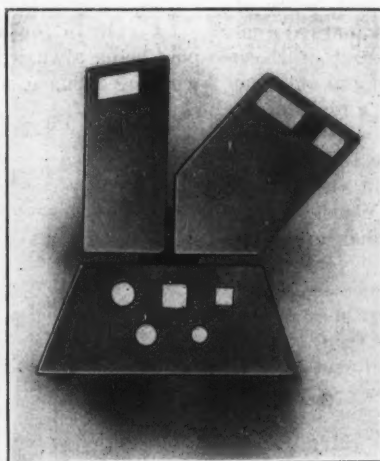


Fig. 7.—The Knives Closed.

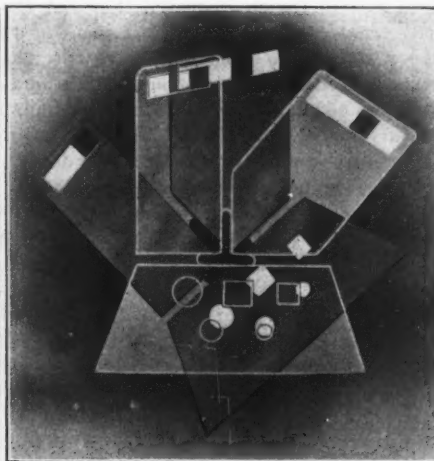


Fig. 8.—The Knives Cutting.

Action of the Knives in the Profile Liberty Shear.

in. angles and tees, and weighs 100 lb. and the largest size cuts 4×19 -32 in. flat bars, 1 3-16-in. round bars, 1-in. square bars and $4 \times 4 \times \frac{3}{8}$ in. angles and tees, and weighs approximately 400 lb.

The cutting on all of these tools is done in sight and can be watched. The knives are quickly taken out for sharpening and changing, and if odd profile sections are to be cut the company is prepared to furnish special knives for the purpose. The rotary action of the knives while cutting greatly lessens the amount of power required to be applied to the lever in operating the shears and also insures a uniform cutting power from the beginning to the end of the stroke, the result being a clean cut, without distorting or deforming the section in any way.

near York, Pa., has suspended operations. The suspension is due to the closing of the Knickerbocker Trust Company, New York. The trust company, it is stated, has \$800,000 of the power company's money on deposit, which is tied up. The company has contracts with Baltimore and other cities and power is promised early in 1908. If the plant is not completed on time the contracts may be lost.

The Panama Canal engineers have decided that the width of 100 ft. originally fixed upon for the canal locks is not sufficient, if a reasonable regard is had for the developments of the future. A width of 125 ft. is now favored, but the change has not been formally sanctioned.

The Blair Port and Bulkhead.

A New Construction for Open Hearth Furnaces.

A novel construction of ports for open hearth furnaces has been developed and patented by T. S. Blair, Jr., of the Lackawanna Steel Company, Buffalo, N. Y., which

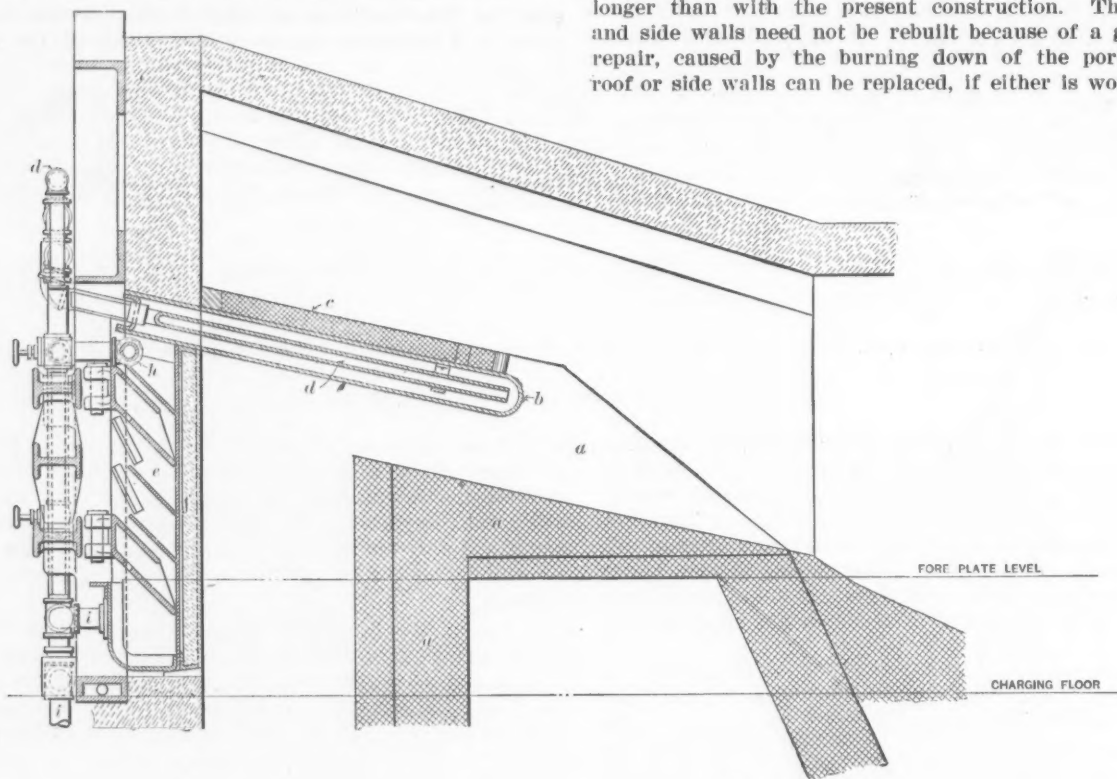


Fig. 1.—Sectional View of the Blair Port and Bulkhead for Open Hearth Furnaces.

is of interest, especially in view of the rapid increase in open hearth furnace construction and the probability of still greater development by reason of the marked tendency to require open hearth rails. The first of these ports was installed experimentally in one of the old type furnaces at the Lackawanna Steel Company's plant early in July last. It has been running continuously without giving any trouble or causing any delay on the furnace, the port being in as good condition as on the day it started, while the furnace has already run nearly double the number of heats this type of furnace has averaged on the brick ports.

Figs. 1, 2 and 3 give, respectively, a sectional elevation, a sectional plan and an end elevation of the new port, Figs. 2 and 3 being on a reduced scale from that of Fig. 1. The whole end block *a*, ports and downtakes, is built of ground magnesite, with 15 per cent. of ground basic slag, and enough coal tar to make it pack well and rammed in. The gas port is covered by a water cooled boiler plate hood, *b*, which rests 12 in. on each side of the port on the magnesite bank, and is covered with rammed magnesite, *c*, so that all seams in the hood are protected from contact with the flame. The hood is only carried forward over the port to a point about 5 ft. back from the block, forming a mixing chamber for the gas and air before they enter the combustion chamber proper over the hearth. The end blocks may be built of silica brick in the customary manner, the main features being the water cooled hood replacing the brick arch, but if built as described above the inventor considers them practically indestructible.

The bulkhead is a water cooled box, *e*, having a $4\frac{1}{2}$ -in. lining of brick, *f*, swung on hinges, *g*, so as to be readily opened like a vault door at any time between heats, for the purpose of leveling up the port slopes. The cooling water is delivered through the feed pipe *d* to the front or nose of the port hood *b*, and passes out at the back end of the hood through the pipe *h*, which delivers it to the bulkhead *e*. It then escapes through the pipe *i*

to the furnace valves. As the cooling water thus goes from the ports through the furnace valves no additional water is required.

In addition to providing a practically indestructible port, the inventor notes the following advantages of the construction he has provided:

Control of the combustion and direction of the gas at all times, so that roofs and side walls last much longer than with the present construction. The roof and side walls need not be rebuilt because of a general repair, caused by the burning down of the ports, but roof or side walls can be replaced, if either is worn out,

when the furnace flues are being burned out over Sunday without any delay.

A gain in the speed of the furnace results from the port being always at the length which gives the sharpest working furnace, about 5 ft. back from the block. This

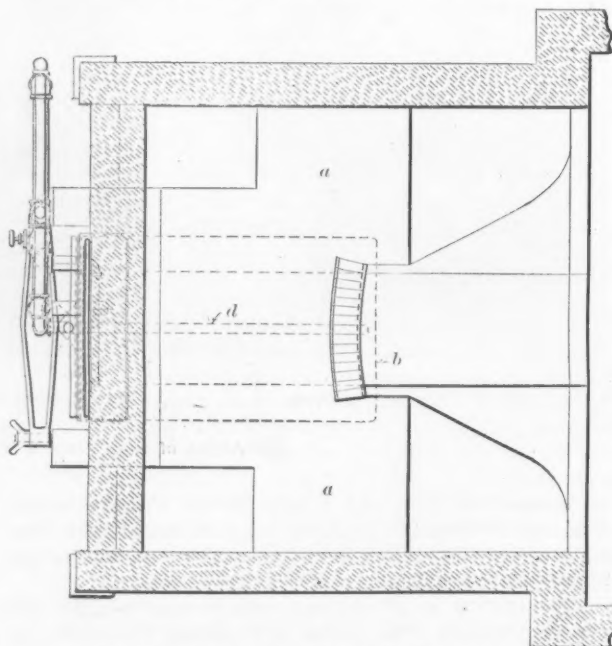


Fig. 2.—Plan Section of Port and Bulkhead.

provides a mixing chamber for the gas and air before entering the hearth, and the furnace can be run hotter, since the new construction of port easily withstands a temperature on the outgoing end which would destroy a port built in the usual way of silica brick.

There being no silica brick in the blocks to melt

down and flux the magnesite bank the end breasts of the furnace do not cut, as in common practice. This means a saving in time between heats, as well as in magnesite and dolomite. In four months' run no magnesite has been used on the end of the furnace under the port in the first furnace so equipped by the Lackawanna Steel Company. The burning out of the bulkhead is what

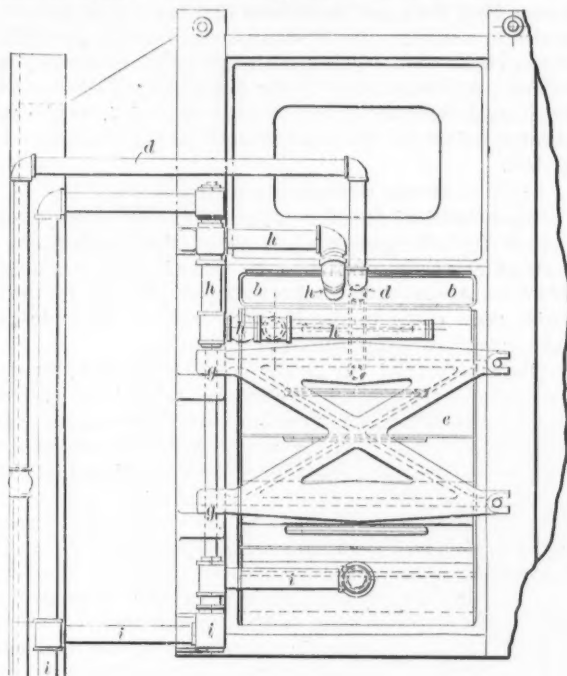


Fig. 3.—End Elevation.

chiefly forms the slag that fills up the slag pockets. Water cooling that portion which burns out, about 6 ft. in height where the outgoing flame turns down, obviates this.

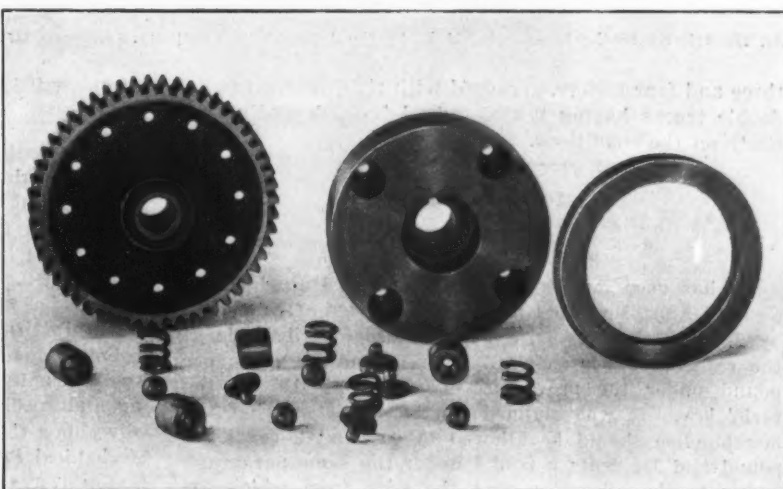
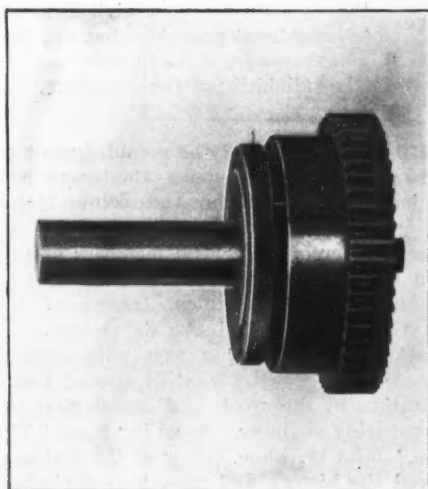
The saving in repairs is put as follows: Repair of bulkhead, 26,000 silica brick per year at \$35 laid, \$910; repair of ports and block four times a year at \$1500, \$6000. A saving computed at several times the sum of the above two items is represented, it is claimed, by the steel production lost by the ordinary furnace off for repairs four times a year for 10 days each time, a total of

The Yieldable Gear.

A power transmission through gears does not have the protection against overload and breakage inherent in a belt transmission. Any friction drive will slip before injury is done by an interrupted motion, unless the drive is excessively powerful; but a drive through gears keyed to their shafts is positive up to the breaking point, no matter how little power is ordinarily transmitted. There are often parts in machinery that cannot well be driven by belt, but yet need a safety device to permit them to slip if the resistance to rotation exceeds a definite amount. For such cases it is common to resort to shearing pins or a friction hold of the gear to its shaft.

The safety slipping gear herewith illustrated and made by the Yieldable Gear Company, Springfield, Ohio, is offered as an improvement on the present forms of gear transmission protection. Its construction will be understood from the unassembled view of its parts. The gear proper is loose on its shaft and runs in close proximity to a special flange keyed to the shaft. Four pockets in the opposing face of the latter contain compression spiral springs, which tend to eject sliding plungers having spherical recesses in their outer ends for steel balls. These balls are thus held in contact with spherical seats in the web of the gear. In this manner the shaft and gear are yieldably connected, the point at which slipping will occur being determined by the amount of compression of the springs. This compression is adjustable by a knurled nut on the back of the flange, which when screwed up forces pins into the pockets, decreasing their depth and compressing the springs. When the predetermined load is exceeded the gear and flange slip in relation to each other, but as soon as the unusual demand is over the parts resume action automatically, and no parts have to be replaced as when shearing pins are used. It will be noticed that here are 12 holes in the gear web. Any number which is a multiple of four might have been used, as the holes must be in sets of four, 90 degrees apart, so that there will always be four to register with the pockets of the flange. The nearer the holes are placed together the less will be the motion lost when the gear is permitted to resume action.

The features to which special attention is directed by the maker are simplicity of construction, reliability of operation and adjustability. The gears are applicable to any feed or speed change devices such as are to be found



Assembled and Unassembled Views of the Safety Slipping Gear Made by the Yieldable Gear Company, Springfield, Ohio.

40 days. From the above savings deductions are to be made for two days a year for replacement of checkers, when using the new port, and for such small repairs to the ports as may be required.

While the Blair port is designed to eliminate the port troubles in furnaces operated with producer gas, it is claimed that it will be almost as useful where natural gas is used, because it will not burn down on the outgoing end. It is also applicable to heating furnaces wherever the conditions are such that the ports give trouble, as is often the case.

in automobiles, electrically driven machines and all kinds of automatic machinery.

Washington advices are that the success is assured of the Treasury plan for increasing largely the amount of national bank currency in general circulation. Between 400 and 500 banks have communicated with the Controller of the Currency, and \$20,000,000 is the minimum estimate of the amount of new bank currency to be taken out under the plan. Some estimates go as high as \$35,000,000 or \$40,000,000.

A Jeffrey Electric Locomotive.

The accompanying illustration shows a 25-ton switching locomotive built by the Jeffrey Mfg. Company, Columbus, Ohio, to handle freight cars for the Cerveceria Cuauhtenoc Brewery, Monterey, Mexico. This style of locomotive has the same electrical equipment as the mine type, the only changes being in the side and end frames and the addition of a platform and suitable cab to accommodate the conditions incident to surface work. The motors are of the waterproof steel frame type having drum wound armatures, laminated pole pieces, oil lubrication with auxiliary grease boxes and liberal wearing surfaces. These locomotives are built in sizes from 10 to 30 tons with two motors, and in larger sizes with



An Electric Switching Locomotive Built by the Jeffrey Mfg. Company, Columbus, Ohio.

three and four motors, arranged with rigid frame or with double trucks having flexible wheel base, depending entirely on the conditions.

Customs Decisions.

Duty on Fish Hooks.

It has been decided by the Board of United States General Appraisers that fish hooks imported at New York by J. W. Hampton, Jr. & Co. are properly dutiable at the rate of 40 per cent. ad valorem and 1¼ cents per pound under the provisions of paragraph 137 of the tariff law. It was claimed by the importers that the merchandise should be allowed to enter at 2 cents per pound and 1¼ cents a pound under the same paragraph owing to the allegation that the wire from which the hooks are made was valued at not over 4 cents per pound. General Appraiser Fischer, who writes the decision for the Board, states that the case was submitted for decision on the record without the introduction of testimony or evidence of any kind in support of the contention. From an inspection of the papers in the case, the tribunal finds no reason for disturbing the classification returned by the collector.

Fuller's Rules.

The Board has decided that the classifying officers of customs erred in exacting duty at 45 per cent. as manufactures of metal on so-called Fuller's rules. The articles are made of three cylinders with slide arrangement, and

are composed of paper, metal and wood. The Eugene Dietzgen Company, the importer, claimed that the rules should be admitted at 35 per cent. as articles composed in chief value of paper, and this contention the tribunal upholds.

Old Copper Shells.

Free entry for old copper shells imported by Albert A. Moore, New York, on the ground that they were American goods returned, has been denied on account of the failure of the importer to comply with the usual Treasury regulations. A protest filed by the Consolidated Kansas City Smelting & Refining Company was overruled, as the protestants failed to file their protest in the time required by law.

German Tariff Complications.

The refusal of American appraising officers of customs at New York the past week to accept the certifications of German chambers of commerce regarding the values to attach to exports from that country subject to ad valorem duties upon entry in the United States is likely to precipitate serious complications.

The commercial agreement entered into between this country and Germany and effective July 1 last specifies that "the certificates as to value issued by German chambers of commerce shall be accepted by [American] appraisers as competent evidence and be considered by them in connection with such other evidence as may be adduced." Much has been expected by the German exporting interests and their connections on this side of the Atlantic from the authenticating of values by the trade organizations of the German Empire, while representatives of domestic manufacturing interests have characterized the certification concession as one permitting the Germans to enter ad valorem imports into this country at their own prices.

According to officials of the New York Custom House, certifications of the chambers of commerce for certain goods of a similar kind issued on the same day have varied widely as regards values. Under these circumstances the appraising officials have been compelled to make advances on imported goods without reference to the affidavits of the German commercial bodies. It is considered probable that the special Treasury Commission now in

Europe will look into the reliability of the chambers.

The twenty-fifth anniversary of the establishment of the National Association of Stationary Engineers was celebrated at a banquet held at the Auditorium Hotel, Chicago, on the evening of October 26, which was attended by a large number of influential members of this organization. In response to the toast, "The Trend of Technical Training," Geo. N. Carmen, trustee of the Lewis Institute, Chicago, sketched the development of technical instruction and comparing past with present conditions illustrated the growing need of special training and specialization in the work and duties that devolve upon the operating engineer. Speaking upon "The Mechanical Press," John W. Lane, editor of the *National Engineer*, reviewed the history and growth of periodical literature bearing upon the construction and operation of steam and electrical power plants, emphasizing its influences as an educational factor. Other topics of timely interest were responded to by past and present officers of the organization.

The firm of Howe, Brown & Co., Ltd., former steel manufacturers of Pittsburgh, whose plant was absorbed by the Crucible Steel Company of America, will be liquidated for the purpose of completely terminating its existence. John A. Sutton, Alexander Thomas and John N. Neely, officials of the Crucible Steel Company, have been appointed liquidating trustees by the court.

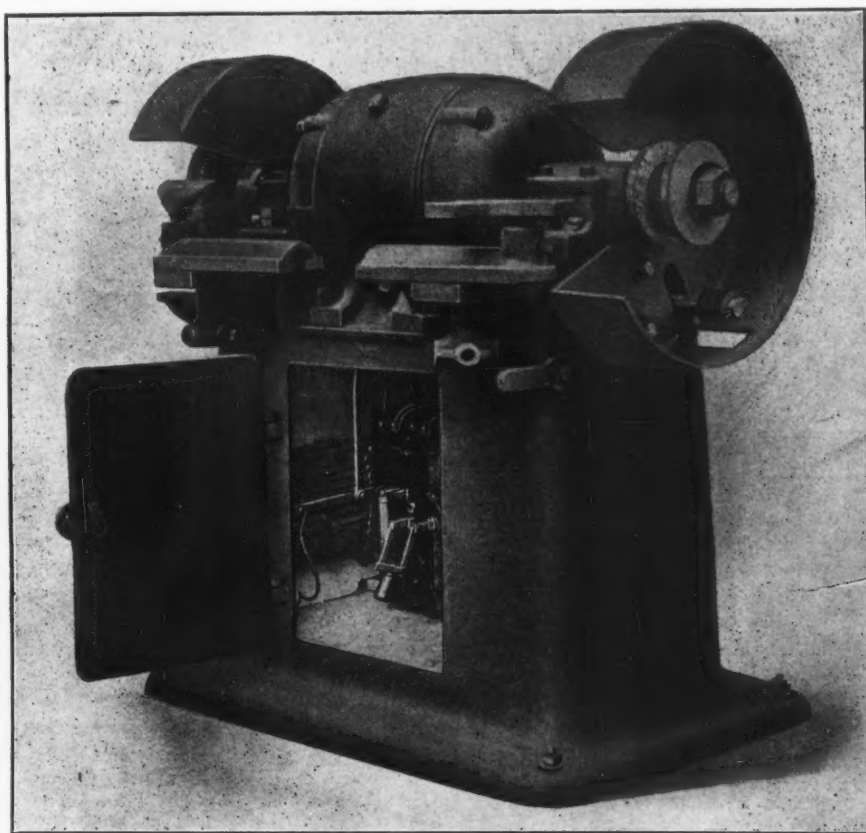
The Ransom Grinding Wheel Speed Controller.

To obtain the best results from grinding wheels it is important that a proper peripheral speed be constantly maintained as the wheel wears down. For the sake of economy the maximum safe speed is desired at all times, but it must never be exceeded. Cone pulleys, variable speed motors and like appliances commonly used to secure this result, are not generally adapted to close adjustments, and because of the time required to calculate the proper speed for wheels reduced by wear, the required changes are frequently not made when they should be. In consequence, wheels are often run too slow to do efficient work, or else are inadvertently speeded up too near to the danger point.

The Ransom patent speed controller, herewith illustrated, is a new device recently perfected by the Ransom Mfg. Company, Oshkosh, Wis., for the regulation of wheel speeds on its line of motor driven grinders. These grinders are of the double wheel type, with the motor

away of the ends when either is momentarily in contact with the wheels during speed adjustment. The starting box is conveniently placed in the base of the machine, where it is out of the way, yet easy of access. The controller can be attached to any of the Ransom motor driven grinders for direct current, carrying wheels from 12 to 30 in. diameter.

Engineering Library to Open Evenings.—On November 6 the reference libraries of the American Institute of Electrical Engineers, American Society of Mechanical Engineers and American Institute of Mining Engineers, 29 West Thirty-ninth street, New York, began to be open in the evening. This will be done hereafter until 9 o'clock on all week days except public holidays. These libraries, constituting practically one library of engineering, situated near the New York Library, in the new headquarters of the Engineering Societies, are available to members of the above societies, engineers and the public generally, subject to proper regulations. Strangers



Motor-Driven Grinder with Electric Speed Controller Built by the Ransom Mfg. Company, Oshkosh, Wis.

armature mounted directly on the arbor shaft. The speed control is effected electrically through a rheostat located inside the base of the machine. This is operated by means of a transverse rocker shaft extending through the column below, and parallel to, the main shaft, and connected by a rod to the arm of the rheostat. The rocker shaft is oscillated by the short lever just below the wheel case on the right end of the machine, as shown in the illustration and produces a movement of the rheostat arm which, according to its direction, accelerates or retards the motor speed by cutting the resistance coils in or out of the motor circuit. The rollers carried on arms at each end of the rocker shaft are kept in close proximity to the circumference of the wheel, but are not intended to be in permanent contact with it. This arrangement prevents the grinder from being run at an unsafe speed, for the diameter of the larger wheel will always limit the maximum speed, since it is impossible to move the rollers independently of each other.

It is stated that a 75 per cent. speed variation is obtained by means of this external feed control and a constant peripheral speed is accurately maintained until the wheel is practically worn out. The rollers on the ends of the rocker shaft arms serve only to prevent the grinding

are requested to bring letters of introduction from members or to secure cards from the secretaries of the respective societies.

Pennsylvania Railroad Extensions.—President McCrea of the Pennsylvania Railroad, after the meeting of the directors in Philadelphia, November 1, gave out a statement as to the policy that would be pursued regarding extensions. In substance, it was that in view of the unsatisfactory outlook for raising new capital in 1908, new work would not be begun nor would capital requirements be increased except those absolutely necessary to economical handling of traffic. Work on the New York tunnel extension and other incomplete improvements will not be pushed as rapidly as heretofore. No work already begun will be abandoned. The erection of steel for the terminal buildings in New York will proceed. The New York Connecting Railroad project with its steel viaduct 3 miles long, connecting the Pennsylvania and the New Haven lines will not be carried out in the immediate future. It is estimated that \$25,000,000 will yet be required for completing the improvements in and about New York. The original estimate for all this work was \$100,000,000.

The Stockbridge Shaper Automatic Down Feed.

A patent has recently been granted to the Stockbridge Machine Company, Worcester, Mass., on an automatic down feed attachment, which has been applied to its line of shapers. The device is shown in the illustrations applied to a 16-in. back geared machine, Fig. 1, and a 24-in. back geared motor driven shaper, Fig. 2, containing a new arrangement for the application of a motor drive, in which a belt is employed with motor directly attached to the machine.

The details of the automatic down feed are shown in Figs. 1 and 3. The feed is imparted to the head during the operation of the machine by the intermittent rotation of the screw A, which is actuated through a train of gears and intermediate shafts by the motion of the oscillating

the dog swings back permitting the arm to pass by. As the operation of this feed is automatic there is not only a saving of the operator's time, in that he can do other work while the machine is operating, but the feed is uniform and up to the capacity of the tool at each stroke, which is impossible with hand feeding. The device is simple and compact in its construction.

This shaper is back geared, the slower series of speeds being obtained by manipulating a single lever which performs the dual function of throwing out the clutch and throwing in the back gears. In common with other shapers built by this company the two sizes shown are of the two-piece crank type. The column is of box pattern, with extended base. The ram is of box type, well ribbed to provide the power for high speed cutting tools. The head may be set at any angle, its swivel being accurately graduated.

The tool head of the 16-in. shaper has a travel of $5\frac{1}{2}$

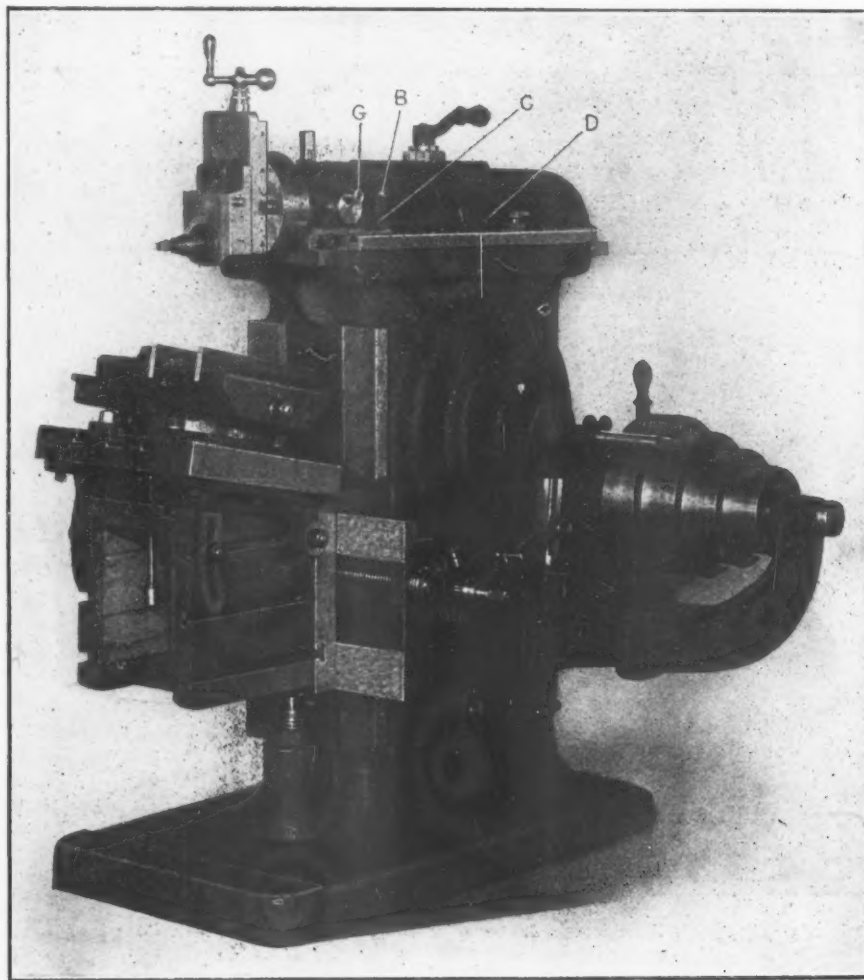


Fig. 1.—A 16-in. Stockbridge Back Geared Shaper with the New Automatic Down Feed.

shaft B. On this shaft is the arm C, the free end of which comes in contact with the dog D on the return stroke of the ram, imparting the rocking motion to the shaft, which is communicated to the sliding head screw, producing the feed. Inclosed in the tubular boss E is a coiled spring, one end of which is attached to the boss, the other to the shaft B, so that the tension of the spring is applied to resist the swinging motion of the arm as it comes in contact with the dog on the return stroke, serving to return the arm when the ram moves forward. The feed on the return stroke is made positive by the pawl acting on the annular gear F, which is provided with internal ratchet teeth, the pawl slipping on the forward stroke to permit the arm to be brought back to position by its spring. The feed is thrown out by the knob G.

The dog D is pivoted on its adjustable slide, and has a coiled spring attached to it on the back side, holding it in the position shown. Should the slide be pushed too far forward, causing the swinging arm to pass over the dog on the return stroke no harm is done, for when the arm comes in contact with the dog on the forward stroke

in., and the screw is provided with a graduated collar reading to sixty-fourths of an inch. The collar is so arranged that it can be set to read from zero at all times without regard to the position of the screw. The stroke is practically uniform the entire length, and has a quick return of four to one. There are eight changes of speed through the four-step cone pulley and back gears, the changes applying to each position of the ram, and the cutting speeds range from 8 to 90 ft. a minute. A cross feed of 22 in., automatic in either direction, is provided, the screw for which also has a graduated collar. The rocker arm allows the passing of a 3-in. shaft through under the ram for key seating. The table is of box form, with working surface on top of $10 \times 11\frac{1}{2}$ in., and on the two sides of $11\frac{1}{2} \times 12$ in., each side has three slots for clamping work. The vertical movement of the table is 14 in., by means of bevel gears and a double telescoping screw. The length of stroke is $16\frac{1}{2}$ in.; horizontal travel of table, 22 in.; ram bearing in column, 26 in.; width of ram in column, $7\frac{1}{2}$ in., and the vise, of swivel base pattern, opens 7 in. For cutting cast iron the countershaft

is run at 250 rev. per min. The weight of machine and countershaft is 1850 lb.

The 24-in. shaper shown in Fig. 2 is equipped with a Lincoln variable speed motor mounted on the back of the machine and belted to the driving pulley, the belt replacing gearing. This is made possible by the device of gearing the motor pulley to the idler. Each of these pulleys

will be noted in the engraving. The idler is carried on a bell crank, one arm of which is backed up by a spring. The binder handle secures the proper adjustment.

The Technical Publicity Association devoted its meeting of October 31 to "The Mailing List," in securing foreign business. The discussion, introduced by F. F. Cole-

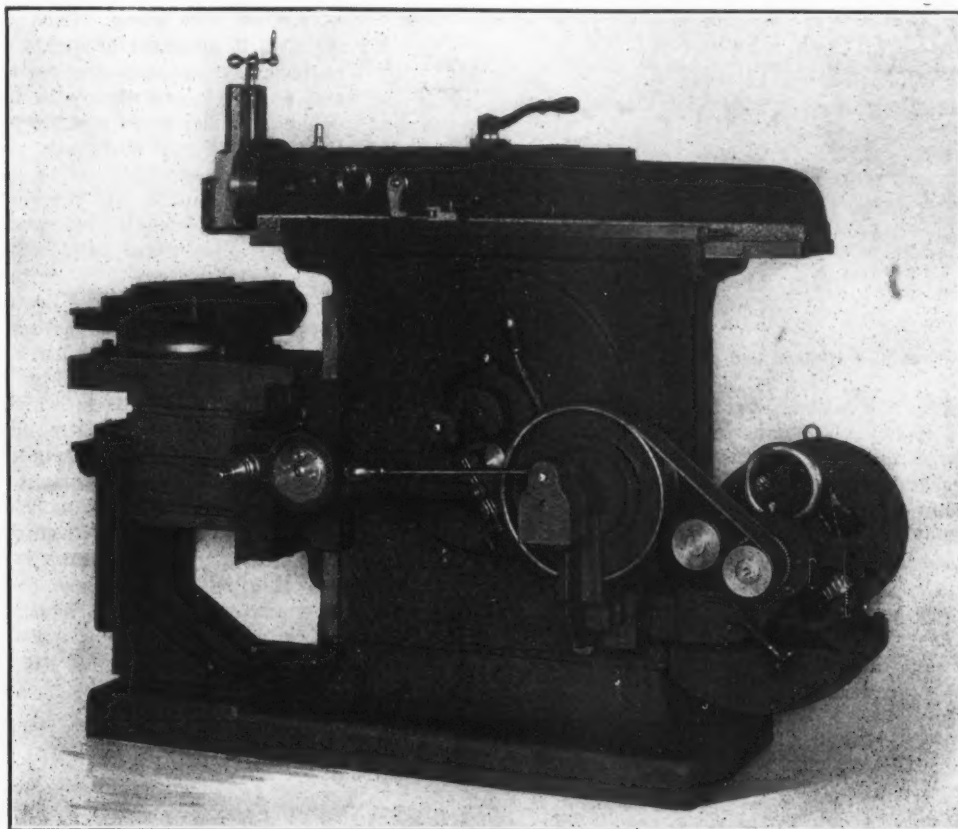


Fig. 2.—A 24-in. Shaper with Variable Speed Motor Drive.

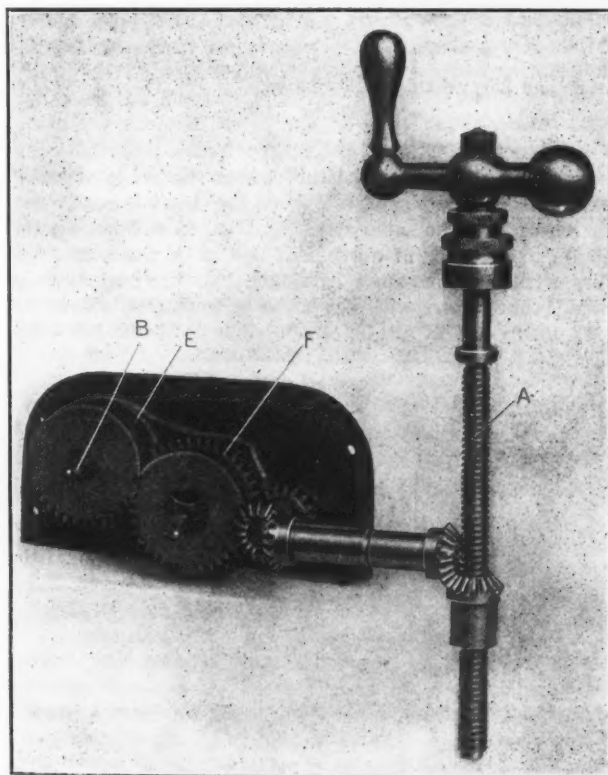


Fig. 3.—Detail of the Automatic Down Feed of the Head.

and its gear are keyed to the shaft, and consequently the belt contact of the idler is as effective as that of the motor pulley. Were it possible for the belt to slip on the motor pulley the idler would then become the driver. This arrangement gives a large degree of belt contact, as

man, advertising manager of the Lidgerwood Mfg. Company, became general. Steven de Csesznak, of the *American Exporter*, gave an address on the subject. The following were elected to membership: Randolph T. Ode, Providence Engineering Works; C. Dickens Sternfels, Standard Roller Bearing Company; J. Mason Knox, General Electric Company; L. D. Gibbs, Boston Edison Electric Illuminating Company; Walter S. Rogers, Crane Company; F. S. Snyder, Joseph Dixon Crucible Company. It was announced at this meeting that organizations modeled on the Technical Publicity Association were being started in Chicago and in London, England. Rodman Gilder, Crocker-Wheeler Company, Ampere, N. J., is secretary.

Financial conditions the past week have shown a close parallel to those prevailing during the panic of 1893. Currency has been scarce and in very great demand so that both in New York and other cities of the country a high premium was paid for all varieties of legal money. As an incident of the scarcity, many large railroad and industrial corporations, manufacturers and merchants all over the country paid their employees in large part in checks instead of the customary currency.

The coroner's jury inquiring into the cause of the explosion in the foundry of the Standard Steel Car Company, at Butler, Pa., on October 6, which caused the death of 17 men, has returned a verdict exonerating the company and employees from all responsibility for the accident.

Advices concerning negotiations between representatives of Austro-Hungarian rail producers and the German steel syndicate with a view to including the former in the International Rail Syndicate are that there is little prospect of agreement.

The Cleveland Pattern Letters.

Pattern letters and figures have been a specialty of the Cleveland Galvanizing Works Company, Cleveland, Ohio, since 1895, and about a year ago the company revised and standardized all its dies and patterns so as to be able to offer letters of exact standard sizes and styles.

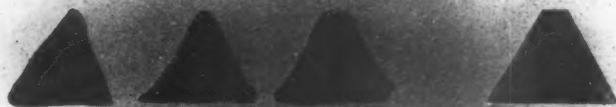


Fig. 1.—Examples of Good and Bad Pattern Letter Sections.

Heretofore there has seemed to be little uniformity among makers of letters. Some were measured on the face and others on the back, and there was often a variation from the catalogue sizes. As indicating what the company aims to furnish it is interesting to read their own statement as to what constitutes good pattern letters. "A pattern letter, properly speaking, is a miniature

ness on this surface, toughness and malleability, graduation of thickness of the various sizes in any one style.

Sections of what may be taken as examples of good and bad letters are indicated in Fig. 1. The bad ones are a consequence of imperfect casting, which required scraping or filing to finish the letter. The Cleveland Company has a process for making the pattern letters which gives sharp edges without need of tooling except to cut off the sprue. Each casting, it is claimed, is an exact duplicate of its master pattern, consequently any letter of a given size and style can always be matched. The principal difficulty in making pattern letters is the avoiding of shrinkage, particularly in the larger sizes. This has its worst effect in causing the outline and lower edges of the letters to be irregular, as shown in Fig. 2. If the contact of the letter with the pattern is not perfect there will be breaking away in the mold, which will destroy the good appearance of the final casting.

In striking contrast with Fig. 2 are the pattern letters shown in Fig. 3, which are perfectly flat and true on the back, which will insure good work from them. The company claims unusual exactness in the thickness and height of its letters. Proper draft on the letters is of course important, as otherwise they will not draw clean from the sand. The Cleveland Company's practice is to allow a uniform draft on every style of letter which it makes. Letters in Gothic style

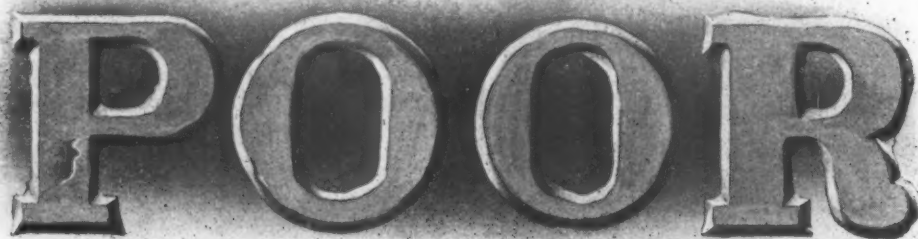


Fig. 2.—Pattern Letters Defective in Outline and Surface Due to Shrinkage.

pattern itself and should be criticised as you would criticise any pattern. It should be geometrically and mechanically correct in outline, with plenty of draft, uniform in height and thickness, and, above all, should have sharp, clean cut edges in the lower side where it fastens to the pattern. A letter that is rounding on the bottom edge will not draw clean and will spoil the appearance of the casting." The following is a tabulation of the points

are made from $\frac{1}{8}$ to 3 in. high, but practically the same degree of bevel is retained throughout the range of sizes, except in the very smallest, when the draft is somewhat increased, and the same attention is given to other styles.

As to accuracy of agreement in size of the actual letters with the company's catalogue list, the statement is made that there will never be a variation exceeding 1-32 in. in any of the letters, and probably 90 per cent.

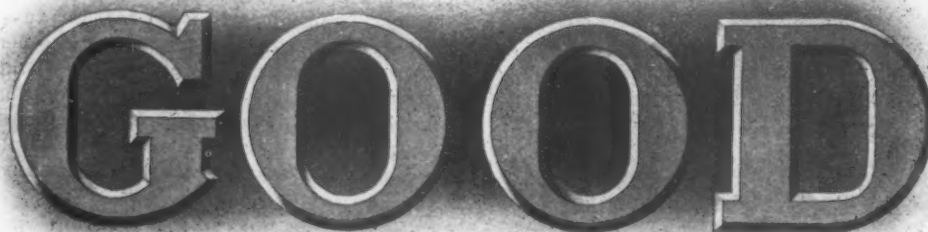


Fig. 3.—The Edges and Surfaces as They Should Appear Without Any Dressing if Properly Cast.

which are measures of the excellence of pattern letters: Absence of tool marks, filing, &c.; smoothness of surface, uniformity of height and thickness in letters and figures of any one size and style, draft, accuracy of the sizes to the measurements specified, correctness of outline, accurate outlines on the back of the letters, absolute flat-

will be within one-hundredth of an inch of specified size. Another comparison of good and bad letters is given in Fig. 4, which shows the backs of one showing a good deal of shrinkage and one which has been cast with sharp, clean edges. The sharper letter is, of course, the easier to apply to the pattern and produces the most at-

tractive appearance on the final casting. The need of toughness and malleability in pattern letters is to permit driving brads through them without bending, and to permit the letter being fitted to a curved surface. The Cleveland composition is especially one exhibiting these characteristics. The peculiar composition of the metal gives a silvery or frosted appearance that is likely to be mistaken for roughness. A touch reveals their excep-

the desire of the Ordnance Department to utilize the increased appropriation with a view not only to the needs of the Government, but also to making the results as valuable as possible to all persons interested in the subject of steel, whether as consulting engineers or as representatives of consuming or manufacturing interests.

J. E. Howard, in charge of the Testing Laboratory at Watertown Arsenal, presented in abstract his report



Fig. 4.—The Backs of Good and Bad Letters, Where Faults Are Most Quickly Seen.

tional smoothness, which offers little chance for the sand to adhere to them, and makes it unnecessary to cover them with shellac.

The company has issued a very interesting book, catalogue No. D-7, on the subject of white metal and brass pattern letters and figures, from which the accompanying illustrations have been taken, and gives a more lengthy discussion of the properties which pattern letters should possess. This catalogue gives an illustrated price-list of the standard stock sizes, and is of value in selecting the best appearing letters for any particular purpose.

Investigation of Steel and Structural Members.

An increased appropriation has been made available for the current fiscal year for the extension of the work carried on in the past at the Watertown Arsenal in the investigation of the properties of materials of construction. It is proposed to conduct this investigation along lines of the greatest practical value to users as well as manufacturers of materials. In the experimental study of steel and steel products it is proposed to begin with the metal in the ingot and thence to follow it out to the finished sections and to built members. By authority of the Ordnance Department, William R. Webster, consulting engineer, and Edgar Marburg, professor of civil engineering at the University of Pennsylvania, have been engaged to co-operate in the preparation of the programme of tests and in the prosecution of the work.

A meeting attended, at their invitation, by about 25 consulting engineers and representatives of leading consuming and manufacturing interests was recently held at the Engineers' Club, New York City, for the purpose of meeting Major C. L. H. Ruggles, commanding officer, Watertown Arsenal, and J. E. Howard, in charge of the Watertown Testing Laboratory, with a view of determining the most desirable programme for the initiation of the proposed investigation. This meeting was held in two sessions. One session, presided over by Dr. Charles B. Dudley, chemist, Pennsylvania Railroad, was devoted to a discussion of metallurgical questions applying to ingot structure, blooms, billets, slabs and forgings, and it was the sense of the meeting that it was desirable to make a study of these questions a special feature of the proposed work. The second session, at which J. V. W. Reynders, vice-president Pennsylvania Steel Company, presided, gave consideration to a preliminary programme for tests of structural members, including columns, riveted tension members, riveted splices, riveted connections in building construction and the general subject of riveting.

At the opening of the meeting Major Ruggles explained that the work was not to be regarded in any sense a government investigation of steel, but that it was

to the Ordnance Department in which attention was drawn to the desirability of making provision for the extension of the usefulness of the Testing Laboratory, and indicating in detail numerous lines of research that might be taken up to advantage.

It was the sense of the meeting that the extension of the testing facilities in this country had not kept pace with the advance in engineering construction, and a resolution was adopted by unanimous vote that the enlargement of the present facilities at the United States Watertown Arsenal by the erection of a testing machine of at least 10,000,000 lb. capacity was desirable. It was also decided to authorize the chairman, Dr. Charles B. Dudley, to appoint two committees, subject to the approval of the Watertown authorities, one on ingot structure, billets, blooms, slabs and forgings, and the other on tests of structural materials. These committees have since been appointed and much preliminary work has already been accomplished, which will be submitted at an early date to the engineering profession for criticism and suggestions.

Hazelton Sheet Steel Company.—Arrangements have been completed for moving the sheet steel plant at Newcomerstown, Ohio, which was recently purchased from the United Sheet & Tin Plate Company by E. Cooper Shapley of Philadelphia, Pa., and others to Hazelton, Pa., where a site has been donated by the Lehigh Valley Railroad. The Hazelton Sheet Steel Company has been incorporated in Delaware with a capital stock of \$350,000 to operate the plant, which is to be erected under the supervision of the Schlieper Engineering Company, Pittsburgh, Pa. The company is laying out the site and will shortly start work on the construction of a group of buildings, the main mill to be 110 x 254 ft. There will also be a boiler house, 40 x 80 ft.; gas producer plant, 40 x 40 ft., and a roofing building, 62 x 240 ft. It is also the intention to add a galvanized roofing department, for which a building, 50 x 250 ft., will be erected. While the company has been incorporated in Delaware, it is said to be the intention of the management to obtain a Pennsylvania charter with a largely increased capital stock. E. Cooper Shapley is president and Charles MacBride acting treasurer.

Among the licensees who have recently closed for the Héroult electric steel furnace and process are Boehler & Co., the famous crucible steel makers of Kapfenberg, Styria, Austria, and the Bismarck Huette, Silesia, Germany. It is reported that these great crucible steel makers purpose to erect larger Héroult plants than any now in operation or under construction. The new large Héroult plant of Lindenberg & Sons at Remscheid, Germany, is expected to start early next year.

Coke Production in 1906.

Annual Report of United States Geological Survey.

WASHINGTON, D. C., November 5, 1907.—An increase in production of nearly 13 per cent., combined with a 10 per cent. advance in average value per ton, is recorded in the forthcoming annual report of the United States Geological Survey on the output of coke in 1906, prepared by Edward W. Parker. A notable feature of the report is the discussion of coke making in by-product ovens, which is now being given serious attention by the leading steel making concerns, but which during the past three or four years has made surprisingly little progress, notwithstanding the great economies effected by the use of retort ovens. The coke obtained as a by-product in the manufacture of illuminating gas, popularly known as gas house coke, is not considered as coming within the scope of this report.

Source of Coal Used.

The coal consumed in the manufacture of coke in the United States is drawn from six of the seven bituminous coal fields, namely: 1. The Appalachian field, embracing the great coking coal regions of Pennsylvania, Virginia, West Virginia, Ohio, Georgia, Alabama, Tennessee, and eastern Kentucky; 2. The eastern interior field, which includes the coal areas of Illinois, Indiana and western Kentucky; 3. The western interior field, embracing the States of Iowa, Kansas, Missouri and Nebraska; 4. The southwestern field, including Arkansas, Indian Territory and Texas; 5. The Rocky Mountain field, including Colorado, New Mexico, Utah, Montana, South Dakota and Wyoming; 6. The Pacific Coast field, in which the only coking coals are found in the State of Washington. The coal of the northern interior field, lying wholly within Michigan, has not so far been used for coke.

A considerable quantity of coke is made in States in which there are no coal fields—namely, Massachusetts, Minnesota, New York, New Jersey and Wisconsin. The ovens in Minnesota were completed and put in blast in 1904. The plant consists of 50 Otto-Hoffmann ovens, located at Duluth. The ovens near Baltimore, Md., and at Del Ray and Wyandotte, Mich., are supplied with coal from other States. One of the two plants in Wisconsin is composed of beehive ovens, in which coal from Pennsylvania is used. With this exception all of the coking establishments outside of the coking coal producing States are retort oven plants.

The unit of measurement used in this report is uniformly the net ton of 2000 lb.

Statistics of Production.

The total production of coke from the beehive and by-product ovens of the United States in 1906 amounted to 36,412,217 tons, against 32,231,129 tons in 1905, an increase of 4,170,088 tons, or 12.94 per cent. The production in 1906, as in 1905, surpassed all previous records in the history of coke making in the United States. Of the total production in 1906, 31,843,090 tons were produced in beehive ovens, against 28,768,781 tons in 1905; the production from retort or by-product ovens in 1906 was 4,558,127 tons, against 3,462,348 tons in 1905. From this it appears that while the total production from retort ovens in 1906 was only about 12 per cent. of the total output, more than 25 per cent. of the total increase was in by-product coke.

The value of the total coke product in 1906 increased in even greater proportion than the tonnage, from \$72,476,196 in 1905 to \$91,608,034 in 1906, a gain of \$19,131,838, or 26 per cent. The value of the product in 1906 was nearly double that of 1904, when the production amounted to 23,661,106 tons.

In considering the total value and the average selling price for the coke produced in the United States it should be remembered that in many cases the values are arbitrarily fixed. A considerable number of the coke ovens in this country are operated by large corporations, which operate also coal mines and blast furnaces, the coke making being really only an incidental part of the business.

The quantity of coal used in the manufacture of coke in 1906 was 55,746,374 tons, valued at \$62,232,524. The value of the coke produced from this coal was \$91,608,034, a difference of \$29,375,510, which represents the profits on the coking operations, less the cost of manufacture and the expenses of administration and selling. In 1905 the value of the coal used was \$50,614,674, and the value of the coke produced was \$72,476,196, a difference to cover all expenses of manufacture, administration, and profits of \$21,861,522.

Statistics of Ovens.

There were at the close of 1906 93,901 coke ovens in the United States, against 87,564 in 1905, an increase of 6337. Of the total number of ovens in existence in 1906, 5305 were idle during the entire year, leaving 88,596 active ovens, which produced 36,401,217 tons of coke, an average of 410.9 tons per oven. In 1905, out of 87,564 ovens, 5932 were idle, showing that in addition to the new ovens added to the entire equipment in 1906 the number of ovens idle was 627 less than in 1905. The active ovens in 1905 produced an average of 394.8 tons per oven.

The total number of ovens in 1906, above given, included 3603 by-product recovery ovens, of which 241 were idle during the year. The production from the 3362 active ovens was 4,558,127 tons of coke. The average production from these ovens was 1356 tons. In 1905 the average production from by-product ovens was a little more than three times that of the beehive ovens, while in 1906 it was nearly four times as great.

At the close of 1906 4519 new ovens were in course of construction, of which 112, or less than 2.5 per cent., were of the retort or by-product type, and all of these were of the Otto-Hoffmann or United-Otto type of structure. With the exception of one year, 1904, there were less ovens building at the close of 1906 than in any year since 1900, and there were fewer by-product ovens building at the end of 1906 than in any year since 1890.

The number of completed retort ovens in the United States has a little more than trebled in five years, there being 3603 in existence at the close of 1906, as compared with 1165 in 1901. In 1904 the production of by-product coke was 2,608,229 tons, or 11 per cent. of the total; in 1905, 3,462,348 tons, or 10.7 per cent., and in 1906, 4,558,127, or 12.5 per cent.

Considering each bank of ovens as a separate establishment, the returns for 1906 show a total of 532 establishments, as compared with 519 in 1905 and with 506 in 1904. There were 69 establishments that were idle throughout the year, as compared with 75 in 1905 and 82 in 1904. There were also 15 new establishments, having a total of 1887 ovens, which were not completed and put in blast before the close of 1906.

The Industry by States.

The following table shows the number of establishments and ovens and the production, total value and value per ton of coke in 1906 by States:

State or Territory.	Establishments.	Ovens.	Coke produced. Tons.	Total value of coke.	Price per ton.
Alabama	42	9,731	3,034,501	\$8,477,899	\$2.79
Colorado*	15	3,419	1,455,905	4,504,748	3.09
Georgia	2	531	70,280	277,921	3.95
Illinois	4	309	268,693	1,205,462	4.48
Indiana	1	48
Indian Territory	5	490	49,782	204,205	4.10
Kansas	5	81	1,698	4,101	2.42
Kentucky	6	462	74,064	169,846	2.29
Missouri	2	6	0	0	...
Montana	4	555	38,182	266,024	6.97
New Mexico	4	571	147,747	442,712	3.00
Ohio	8	575	293,994	1,013,248	3.45
Pennsylvania	239	47,185	23,080,511	54,184,531	2.35
Tennessee	17	2,731	483,428	1,350,856	2.79
Utah	2	684	†	†	...
Virginia	18	4,641	1,577,659	3,611,659	2.29
Washington	5	216	45,642	226,977	4.97
West Virginia	141	19,714	3,713,514	8,192,956	2.21
Maryland	12	1,952	2,085,617	7,474,889	3.58
Massachusetts					
Michigan					
Minnesota					
New Jersey					
New York					
Wisconsin					
Wyoming					
Totals	532	93,901	36,401,217	\$91,608,034	\$2.52

* Includes the production of Utah. † Included with Colorado.

Of the 25 States and Territories in which coke was produced in 1906, there were 16 in which the production increased and 9 that showed a decreased output. All of those in which the production decreased were comparatively unimportant producers, their combined output amounting to less than 650,000 short tons. The greatest percentage of increase was shown by Illinois, whose production in 1905 was 10,307 tons, and in 1906 268,693 tons, this being due to the fact that a bank of 160 Semet-Solvay ovens at South Chicago was put in operation in 1906. Illinois' percentage of increase in 1906 was 2506.9.

After 1893, when the first plant of 12 by-product ovens was completed by the Semet-Solvay Company at Syracuse, N. Y., to the close of 1904, there was a steady and noteworthy increase in the construction of retort or by-product recovery ovens in the United States. During the last two years, however, there has been some decrease in the development of this branch of the industry, and at the end of 1906 there were fewer by-product ovens under construction than in any year since 1899. The reason given for this is that manufacturers are not pushing the construction of these ovens because of the lack of profitable market for the large quantity of coal tar, which is one of the important by-products of retort oven manufacture.

Coke Making in By-Product Ovens.

The quantity of coal consumed in the manufacture of the 4,558,127 tons of by-product coke in 1906 was 6,192,086 tons, indicating a yield of coal in coke of 73.6 per cent. In 1905 the percentage yield of coal in coke in by-product ovens was 74.8 and in 1904 it was 73. These are much larger yields than can possibly be obtained in beehive ovens, as a portion of the "fixed" carbon in the coal is unavoidably burned in beehive oven practice, while in the retort oven the operation is one of distillation only, without the admission of air, and all of the fixed carbon remains as coke. The average yield of coal in coke (including the output of by-product recovery ovens) for the United States in the last few years has been about 65 per cent., and this is probably higher than the results actually obtained. The increase in the production of by-product coke is responsible for an increase in the general average yield of coal in coke in each of the last three years, from 64.1 in 1903, to 64.8 in 1904, 65.1 in 1905 and 65.3 in 1906.

What has been already commented on in previous reports about the slowness of manufacturers to change from the better known but wasteful beehive practice to the by-product recovery methods of coke manufacture is particularly emphasized in the statistics presented in this report. For it would appear that the construction of by-product ovens had about come to a standstill, especially when the records for the preceding five years are taken into consideration. At the close of 1906 new work was limited to 112 Otto-Hoffmann ovens, which were being added to the 260 ovens already built at Johnstown, Pa., by the Cambria Steel Company. These new ovens were completed and put in blast in February, 1907.

This condition is somewhat difficult to understand when the economies effected by the use of retort ovens have been so clearly demonstrated. These economies consist not only in the higher yield of coal in coke, but in the recovery of the valuable by-products of gas, tar and ammonia. One of the reasons that has been assigned for the comparatively retrogressive condition exhibited by the statistics for 1905 and 1906 is the lack of a profitable market for coal tar, and yet the United States is importing coal tar products to the value of several million dollars annually, while the development of the fuel briquettings industry has been held back because of the lack of assurance of a steady supply of coal tar pitch for a binder, and users of creosoting oils for the preservation of timber complain of an insufficient domestic supply of this product of coal tar distillation.

There does not appear to be any trouble in disposing of the ammonia, for which a good demand exists, and the practicability of long distance transmission of the gas has been successfully demonstrated, thus insuring markets for the surplus of this retort oven product. The Otto-Hoffmann oven plant, at Camden, N. J., is distributing gas to

Plainfield, New Brunswick and other cities and towns, the maximum distance being 83 miles.

The Greatest Obstacles Encountered.

The original cost of installation and the length of time required to build a by-product oven plant as compared with a beehive, together with the well-known unwillingness of iron masters to adopt a new fuel, are probably the most potent factors in holding back the development of the byproduct coking industry.

The prejudice of blast furnace managers against retort oven coke, the appearance of which, compared with Connellsville or other high grade beehive coke, is indeed somewhat against it, has been decidedly pronounced; but this is gradually yielding, and must in the end yield entirely to the effects of successful experience with by-product coke. The fact that the Cambria Steel Company has added a fourth installment of 112 ovens to its byproduct plant, making the total 372 ovens, is sufficient evidence on this point. Of the 25 by-product plants in the United States, 15 produce coke for blast furnace use.

The use of crushed and sized coke for domestic and industrial purposes as a substitute for anthracite coal in communities forbidding the use of smoke producing fuels is growing. In course of time the beehive oven must give place to the more advanced and more economical recovery oven, and with this change will come a transfer, in large part, of the coking industry from the coal mining regions to points nearer the places of consumption, particularly of the coke and gas, and with this will also be made a long stride in the abatement of the smoke nuisance, from which so many of the interior and Western cities are endeavoring to escape.

The most important development in by-product oven construction promised for the future is in the announcement made by the United States Steel Corporation that a plant of 1000 retort ovens will be built at Gary, Ind., and operated in connection with the new steel works under construction at that place. The type and general method of construction have not been made public, but the ovens are reported as being different in design from the ones now in use, the aim being to produce a coke capable of supporting the heavy load of the modern blast furnace and a gas of high calorific value and in sufficient quantity for fuel in the manufacture of open hearth steel. This is an encouraging sign, and bears out the prediction made in the preceding paragraph.

W. L. C.

The International Harvester Company and the International Harvester Company of America have moved their general offices from 7 Monroe street to the new Harvester Building, recently completed, at the corner of Michigan avenue and Harrison street, Chicago. The seven top floors and the basement of this 15-story building will be occupied by these interests. A restaurant for the exclusive use of the company's officers and employees is located on the fifteenth floor, and an extensive showroom is fitted up in the basement for the display of implements and other machinery manufactured by the company. Besides being admirably located on the lake front, each department of the organization is provided with commodious, well lighted and properly ventilated rooms.

At New Haven, Conn., October 29, Frank McGee of Worcester, Mass., New England business agent for the Iron Molders' Union, was sentenced to one year in jail for intimidating workmen at the McLagon Foundry Company's plant in New Haven. McGee had come before the Common Pleas Court on an appeal from the police court, where he was first tried. The police court fined McGee \$200 and sentenced him to jail for two years. The case will be appealed to the Supreme Court of Connecticut.

The Humbert works of the American Sheet & Tin Plate Company, at South Connellsville, Pa., is being dismantled and the equipment moved to other mills. This plant contained six hot mills and had a capacity of 6000 base boxes of tin plate per week.

THE IRON AGE

Established in 1855.

New York, Thursday, November 7, 1907.

Entered at the New York Post Office, as Second Class Mail Matter.

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						HARDWARE EDITOR.

Rail Problems Better Understood.

The months intervening between the Chicago convention in April and the New York convention last week of the American Railway Association have brought some changes in the steel rail situation. Chief of these in its effect on order books is that financial considerations have taken precedence of any differences as to specifications. Interest on the part of the steel trade was less keen, therefore, in the report presented to the Railway Association by its Committee on Rail Sections and Wheel Sections. While the report was technically withdrawn from consideration, and the subject of the chemistry of rail steel and of the amount that should be cropped from the top of rail ingots will be investigated further by experts, reference should be made to the change it reflects in the attitude of the railroads. The extract from the majority report, which appears on another page, is in marked contrast in its conciliatory attitude with much that was said on railroad behalf some months ago as to the shortcomings of American rails. The value of the joint conferences between rail mill and railroad engineers in recent months is apparent in the better appreciation that now exists of the willingness of the steel rail manufacturers to comply with every feasible requirement that will improve the quality of their product. There was so much thundering in the index that the pacific tone of the final report is evidence of good educational work meantime. Something has been accomplished when the railroad representatives have been made to see how exceptional are specifications which assume to prescribe in detail mill conditions and practices, instead of almost wholly basing the acceptance of product on its ability to meet successfully certain prescribed tests.

That the rail mill representatives in their turn have found some things capable of improvement in the methods of the railroads is another interesting inference from the action of last week's convention. Repeatedly the rail mills have protested against the looseness of the reports of rail failures. "Piped rail" has been the convenient blanket term employed by many a trackman lacking time or inclination to investigate closely or ability really to recognize the cause of the break. Admitting that too much has been left to the testimony of uncertain, if not incompetent, witnesses in the matter of rail failures, the American Railway Association has now adopted a uniform blank for reports on rails taken from track. This form carefully classifies rail defects and provides means for bringing the data in each case before competent persons, and should insure more reliable deductions in the future.

With all its exaggerations and unwarranted state-

ments the agitation over American steel rails will have an important outcome, compensating, in part at least, for the harm it has done. Manufacturers and users of rails have made anew an exhaustive study of their joint problems, and in such a spirit of fairness that each side, it may be truly said, is more tolerant of the position of the other. The new sections will contribute their share to the resulting improvement. Better mill practice will add something. The open hearth rail, as its tonnage increases, will demonstrate whether or not the railroads have laid too much stress on its high carbons and low phosphorus. But always there will be the divergent viewpoints of the railroad that insists on a hard rail that will not wear down rapidly and of the railroad that wants first of all a rail that will not break. And there will be, on the one hand, the railroad that considers a high percentage of discard so essential to securing uniformly high class rails, that it is willing to pay for the additional cost of liberal cropping, and on the other, the road whose advocacy of improvements is contingent on the extra expense being borne by the mill. In other words, both in its technical and its commercial aspects the steel rail problem is two-sided. Fortunately, the recent agitation has brought needed recognition of the fact that to find ways of reducing the number of rail breakages is distinctly not a matter of bringing to book a manufacturer whose practice is faulty.

Machinery Freight Rates Advanced by New Rules.

The committee of the National Machine Tool Builders' Association having in hand the agitation of a return to the more advantageous freight regulations on machinery that formerly prevailed has a work to do which, if successfully carried through, will accomplish important economies for the entire trade. The special task of the committee is to attempt to secure a renewal of the old rule under which the whole of a shipment went at carload rates, whether or not there was an overflow. If a lot of machine tools required one car and a part of another to carry it, the flat carload rate prevailed, just as if the tools filled two cars to their minimum weight. The new rule charges the less than carload rate for the overflow, which may be roughly considered as about double the carload rate. The rule is the more onerous for the greater expense involved because it is coupled with another recent change in rule, increasing the minimum carload weight from 24,000 to 36,000 lb. The change in the overflow rate is not universal among the railroads; some of the Eastern roads, at least, have not put it in force. The old custom of maintaining the carload rate where the overflow is in excess of 5000 lb. still continues to some extent. But the new rule has gone into effect on a great mileage of railroads.

The additional expense resulting from these changes constitutes a material item. In the first place, it must frequently happen in the natural order of business that shipments run into an excess over even carloads. Shippers complain that while this was true where the minimum weight was 24,000 lb. it is a much more common occurrence under the new minimum weight. If the overflow is large enough its share in the freight bill will be all out of proportion to that borne by the larger quantity contained in the full carload. To cite a rather extreme case, if there are 54,000 lb. in a shipment and a car will carry but 36,000 lb., as may happen, the cost of the surplus of 18,000 lb. will equal that of the full carload, consequently the freight bill of the shipment will be 33-1-3

per cent. greater than it would have been at carload rates for the whole under the old rule.

Certain classes of machinery, because of their lightness of construction in proportion to their size, will not weigh up to the new minimum weight—that is to say, the full carload will weigh less than 36,000 lb., a condition especially true where the car furnished by the railroad is a small one. This matter of small capacity cars constitutes one of the gravest injustices of the new condition. The minimum weight is frequently close to the maximum capacity. There is not sufficient margin to enable the shipper to plan his freightage advantageously. Where the railroad supplies a car of capacity well in excess of the minimum weight, there is less cause for complaint, though this does not by any means affect the general aspect of the situation by removing the burden of the new rules to any material extent.

Were the 24,000-lb. minimum weight still employed there would be a greater opportunity to arrange shipments, so that overflows would not occur so frequently. The greater the minimum the more difficult it is to confine shipments to full carloads. There is less opportunity to make shipments somewhat under the minimum, at the full carload rate, thus effecting an economy though actually paying more per 100 lb. than if the minimum were reached. It was a common custom under the 24,000 lb. rule to ship as low as 17,000 or 18,000 lb. in a car and pay for the 24,000. There are many other combinations frequently possible under that rule, which are seldom met with now. Occasionally the shipper is helped by the higher minimum, but in the great majority of cases it works to the advantage of the railroad.

The Inadequate Weighing Methods of Railroads.

There are many industrial interests that would benefit by co-operating in the work begun by the Weight Committee of the New England Foundrymen's Association, the results of which to date are given elsewhere in this issue. The committee has gone deeply into the subject of shortages in shipments of pig iron and coke. What is true of coke is just as true of coal, for each is billed on the basis of railroad weights at point of shipment, and losses of coal in shipment are even larger than those of coke, because the latter is usually shipped in box cars when it goes to distant points, while coal is almost invariably shipped in open cars. The loss of coal in transit is set as high as 5 to 7 per cent. in some sections of the country. Consequently industries that buy coal in any quantity have a cause in common with the foundrymen in their attempts to procure a better system than that now in use for the shipping of their coke and iron. Other bulky materials may also be included in those affected by present conditions.

Under the existing system the railroad weighs the car loaded with coke or coal on its tracks at point of shipment. The cars are not uncoupled, which means occasional incorrect weights. But of more importance is the fact that the tare weight of the car as stenciled upon it is arbitrarily accepted by the railroad as the actual weight empty, and the difference between it and the weight loaded is taken as the weight of the material shipped. If the stenciled weight is too high the customer gets an advantage. But if, as is almost always the case, the stenciled weight is too low, the shipper and the railroad are the gainers, the former because he bills a greater amount than is shipped, the latter because its

freight bill is based upon too great a tonnage. The customer pays for the extra weight of the car, both in his coal and coke bill and in his freight bill.

The best protection against this class of losses, as well as against losses in transit, is a railroad track scale in the customer's yard, maintained at a high degree of accuracy, tested at stated periods by experts and operated by a sworn weigher. It is said that the investment is a very good one, because expensive leaks are discovered and stopped. The actual weight of every shipment received is obtained by weighing the car before and after unloading. Of course, there is the other important advantage of knowing the exact weight of goods shipped. Occasionally it is possible to get a railroad delivering the cars to weigh them for a small consideration, though this usually gives a gross and not a net weight, dependence upon the stenciled tare being retained. Inland industries, that can least afford to increase their bills for fuel and materials and the freight upon them, items already large in their relation to manufacturing costs as compared with those of competitors located at tidewater, should be especially careful in their provision for exact knowledge of shipment receipts.

The foundrymen have learned that to correct the system of weighing of materials to one that would actually fix responsibility for losses in transit would mean the establishment of weighing stations at point of shipment, at each point of transfer from one operating line to another, and at point of destination. This may come after a while in the natural course of business evolution as men's insistence upon exact methods makes itself felt. A beginning would be made if exact weights at point of shipment and point of delivery could be ascertained. While responsibility could not be fixed between the several transportation companies handling a carload during its journey to the consignee, still there would be a basis upon which a proportionate assumption of losses might be assessed. Trouble between the shipper and the customer would be largely eliminated, and probably a better general system would be adopted by the transportation companies.

Another step in the right direction would be accomplished if the railroads could be persuaded to make frequent corrections of the stenciled tare weights, or, which would be more to the point, if they would abandon all dependence upon these weights and would actually weigh the car empty before it is loaded, as the furnace companies do, thus getting an exact weight of the material.

Shippers have little sympathy with railroad methods that deprive customers of materials for which they have to pay. The coke and coal interests, which have to depend upon the railroads for weights of shipments, would be only too glad to co-operate in a movement that would keep customers satisfied. The trouble lies in railroad methods that have not kept step with the times.

Announcement that the 100th anniversary of the first burning of anthracite coal in a grate will be celebrated in Wilkes-Barre, Pa., on February 11 of next year, will be sent out this week by the Wyoming Historical and Geological Society of that city, which at the same time will celebrate the 50th anniversary of its organization.

Railroads in this country are not alone in shrinkage of value. A published list of English railroad quotations shows that they have shrunk in value fully as much this year as have the American. This is taken as good evidence that the liquidation of securities has been world wide.

The Car Service Situation.

BY A MANUFACTURER.

Articles have appeared in recent issues of prominent railway magazines reviewing the car service situation from an impartial standpoint, supposedly, but which have been, to those familiar with the difficulties surrounding certain manufacturing plants, manifestly unfair to large industrial interests. In order that public discussion of the questions referred to be confined not alone to railroad circles, it seems proper that some effort be made to bring out the opinions of men who have studied the question of car detention from a different standpoint, and whose conclusions should not be set aside for the mere reason that the necessity of their consideration of the question has arisen primarily from an endeavor to avoid what is to them unnecessary additional cost of effecting delivery of freight.

Reasonable Rules Should Be Enforced.

Car service rules, designating certain fixed charges which shall apply on all cars held by consignees and shippers of freight beyond a specified time after the placing of such cars, were made necessary partly through abuses on the part of varied classes of shippers, the resultant causes being car famine, congestion in yards and terminals, added expense to carriers and decreased earning power of equipment. That reasonable rules should be enforced to prevent such abuses is admitted, as the benefits therefrom accrue both to the transportation companies and the public. The problem which has taxed the minds of those who have studied the question has been the working out of an effective rule which shall not be burdensome and which shall prove fair to all. The difficulties which present themselves before the solution is reached are numerous.

A number of the States have passed laws regulating the charges to be imposed by railroads for the detention of cars under certain conditions; and in certain sections of the United States the administration of the rules has been intrusted to the officials of car service associations, which, by mutual agreement among the railroads operating in certain territories, are formed and empowered to administer the rules for the members of the association. This method protects the members of the association by insuring to them that a competing line may not be able to discriminate against another in a certain territory through the favorable application of the rules or the adjustment of claims.

Rules Should Be Uniform.

Each car service association, so far as we can learn, is a law unto itself. Each has a code of rules different in certain respects more or less important. The application of rules which permit of a certain degree of leniency is, in a large measure, discretionary with the manager of the association. Federal laws, which are now in force, do not seem to permit of any discrimination by the railroads, and it seems reasonably clear that the collection of car service charges will soon be accomplished under one code of rules, and that the enforcement of these rules shall be nondiscriminatory.

The American Railway Association is at the present time actively engaged in compiling a set of rules, the adoption of which will no doubt be requested of the Interstate Commerce Commission, who will undoubtedly consider them carefully before they are put into effect. So far as we have been able to learn the committee appointed by that association to draw up these rules is considering that the association shall recommend rules which shall be "nonreciprocal"; that there shall be available to consignees no "average rule" under which can be figured the detention and release of cars during a month; that they shall make imperative the payment by the shipper or consignee of \$1 per day for detention to a car of each day or fraction of a day beyond 48 hrs., figured from the first 8 a.m. or 12 o'clock noon after placing; that a moderate free time allowance shall be made to those performing their own shifting, and that these rules shall apply alike to the consignee receiving one car of freight per month and to the industrial establishment

receiving and shipping an average during the year of, say, 500 cars per day.

The Usual Time Allowance.

The monthly 24 hr. average system, while it has not accomplished all that was imposed upon it, contained a measure of acknowledgment of certain physical and commercial conditions which confronted the industries, making impossible the release of all cars within 48 hr. The length of time customarily allowed, 48 hr., while familiar from prolonged usage, is not a magic period. It is not shown that conditions, which at one time perhaps made this a fair time allowance, have not changed. For instance, statistics show that in the 10 years from 1895 to 1905 the freight ton mileage in the United States increased 118 per cent., while the increase in the number of freight cars was but 45 per cent., and the increase in the number of locomotives 35 per cent. over the same period.

The charge is commonly made that consignees of freight, by detaining cars beyond a certain fixed time are using such cars as warehouses, and the accusation is so made as to imply willful misuse of the car and a studied system by which such consignee will profit at the expense of the railroad. We do not think that the transportation authorities are disposed to give their patrons adequate acknowledgment of their own shortcomings, which are very often the cause for cars being detained at destination. We have in mind an instance involving the shipment of 50 cars of material during one month from one place to another, the delivery of one-half of which was made within a period of from six to nine days from time of shipment. It required, however, from 10 to 14 days to deliver 15 of the remaining cars, and 15 or more days to deliver the remaining 10 cars. This irregular movement of cars causes bunching in delivery and brings about congestion, which leads to unnecessary detention. It is only fair that satisfactory provision should be made for allowance to the consignee on his bill for demurrage when handicapped in this way. Car efficiency also in such cases has been lessened, not so much by the consignee as by the carrier.

Difficulties Caused by the Season.

An effort is being made to show that the 24-hour monthly average plan does not afford a satisfactory method of settlement. Has it not frequently occurred to the reader that even with this rule the efforts of the larger industrial plants have been shown at a great disadvantage; that while the "average" is distributed over a month, the difficulties are distributed over the different seasons; that the immense traffic on the Great Lakes is conducted over a period of six months in the year, and that blockades, caused at certain seasons by the movement of crops and by extreme weather conditions, and by transportation matters entirely beyond the realm of the shipper, contribute largely to the irregularities in delivery, which make impossible the unloading of all cars within this short space of time?

With such exacting restrictions the shippers could only operate steadily by having applied restrictions equally exacting on the railroads. They would be compelled to demand movement of their freight with the regularity of the shipment; the supply of equipment necessary for loading as demanded, and the placing of cars for unloading without delays. Should not the industrial plants, therefore, who will be most seriously affected by this action, take a positive stand, and endeavor to have adopted such reasonable car service rules as will not impose upon them an unjust tax and at the same time eliminate continual disputes and adjustments?

Detention of Freight Cars Necessary to a Certain Extent.

It is our claim that detention of freight cars, while in service involving revenue to the owner, is to a certain extent necessary and should be governed by the same rule which controls the conduct of all business; *i. e.*, regarded as a necessary feature of attaining the ultimate object of their commercial existence.

Protection is afforded the railroads of the country which is given no other business enterprise, namely, the securing of fair compensation for the service performed. Rates for transportation are made, and unless they are proved exorbitant or unfair, no effort by the patrons can

cause them to be changed. The importance to all of transportation facilities renders this justifiable, and we would not ask the common interest to be hazarded by the withdrawal of this reassuring attitude of the Federal Government.

Demurrage charges are not intended to bring profit to the railroads. On the present basis it is claimed that the charges are not commensurate with the loss to the railroads, which the detention brings about. The charges are none the less burdensome to those against whom they are made if not assessed in a fair amount, and for the direct accomplishment of a purpose to release cars within such time as is reasonable, not only to the carrier, but to the owner of the freight.

The question has heretofore been one between these two interests, with the power of deciding cases arising thereunder left in the hands of one of these interests. Under present conditions impartiality should be assured through the intervention and supervision of the Federal Government. It should be borne in mind that the growth of our nation commercially consists not alone in the development of our railroad systems, nor yet of our manufacturing institutions, and the development of one will not always be measured by the expansion of the other; yet each is to a large extent dependent upon the other for existence. The policy of "live and let live" marks the safest plan for the permanent existence of both.

The Uniform Bill of Lading.

Analysis of the Hearing Before the Interstate Commerce Commission.

BY R. L. ARDREY.

The hearing given by the Interstate Commerce Commission at Washington last month on the proposed uniform bill of lading brought out very strong opposition to the document which has been prepared and submitted to the commission by a joint committee representing the shippers and carriers. A disappointing incident of the hearing was the vigorous opposition expressed by representatives of the grain and cotton interests to the feature that is most desired in a bill of lading by manufacturing interests and distributors of merchandise freight. Manufacturing interests desire a clause to provide that loss or damage in transit shall be settled on the basis of the invoice price at the place of shipment, and the railroads generally favor this plan, but the grain and cotton interests want settlement at the market value at destination. This was the only serious point of difference brought out at the hearing, although many objections were made to minor features of the document prepared by the joint committee.

History of the Movement.

A few words as to the history of this question may be of interest. Three years ago the carriers east of Chicago printed in their Official Classification, to take effect January 1, 1905, a so-called uniform bill of lading, which was very objectionable to shippers in the territory affected. The Illinois Manufacturers' Association asked the Interstate Commerce Commission for a hearing, which was held at Chicago, and at the suggestion of the commission a joint committee of 10 was appointed, five representing the carriers and five the shipping interests, to draft a new uniform bill of lading, and to harmonize, as far as possible, the conflicting interests of carriers and shippers. This committee, after more than two years of discussion and study, agreed upon a new form, which they submitted to the commission last June. The commission thereupon issued an order to all the railroads of the United States, calling upon them to show cause why they should not adopt this form. All shippers and parties interested who had any objections to offer were invited to attend the hearing and speak for themselves, and many of them had considerable to say. Practically every branch of American commerce was represented, including bankers, European cotton interests and marine underwriters.

Objections Chiefly Sectional.

The objections presented to the commission are of a more or less sectional nature. It may be said, taking them in the order of their importance, that practically no objections were offered by manufacturing interests, excepting to the clause requiring claims for loss or damage to be filed within 60 days from time of delivery. It is now generally conceded that this time is too short, and when a uniform bill of lading is eventually adopted it will provide a much longer period in which to file claims.

The Northern and Western railroads generally approve of the idea of a uniform bill of lading, and their representatives offered only minor objections, of a technical nature, to the wording of the joint committee's document. Without conceding the authority of the commission to enforce upon them an order putting the new document into effect, they generally acquiesced in the desirability of a uniform document, and expressed their willingness to accept whatever the commission deemed reasonable. The only strenuous objection offered by a Northern railroad was by the Chicago & Northwestern, based apparently on the ground that the representatives of the shippers on the joint committee had done their work too well, and had obtained provisions in the interest of the shipper, which were more favorable than existing laws of some of the Western States.

The Southern railroads, however, offered a general objection to the power of the commission to enforce an order that they adopt this or any other form without their consent, and they offered special objections to the quarantine section, which they claimed would be too strict for them to comply with it, and to other features which would restrict them in handling cotton and cotton seed. These objections, which are not of interest to manufacturers or commercial shippers, will undoubtedly receive the careful attention of the commission.

Special Bills Asked by Some Interests.

The shippers of fruits and other perishable products ask for a special bill of lading to cover the requirements of their trade, and the bankers are also insistent upon a special "order" bill of lading, which will be printed on paper of a different color, and contain modifications to safeguard them in advancing money on shipments. The surprising fact was stated by the bankers that they advance yearly \$2,500,000,000 on shipments of commodities like grain and cotton, which are carried on negotiable "order" bills of lading.

An interesting conflict will have to be settled between the railroad and insurance people, over the insurance clause. The carriers wish to throw upon the insurance companies the loss on shipments that are insured, but the underwriters desire to maintain their present right of recourse upon the carrier. This will prove one of the most troublesome questions that the commission will have to settle, as a very large amount of money is involved, since practically all shipments on which bankers advance money are insured.

Objections of Grain and Cotton Interests.

It is unfortunate that the grain and cotton interests, through the numerous and powerful organizations which they control, have placed themselves in an opposition attitude before the commission. To gain one point, in which their interest is naturally opposed to the manufacturing industries of the country, they have come out in a strong effort to defeat entirely the proposed uniform bill of lading. To obtain what they want they would take away what practically all manufacturing interests, especially those based upon iron and steel, are most in need of in a bill of lading.

The joint committee, representing and covering the principal manufacturing States, endeavored to work out a uniform bill that would cover in precise and judicially determined language the multitude of doubtful questions that arise in the relations between shippers and carriers. The laws of the various States differ on many of these doubtful questions, and the old common law has been changed by legislation or court decisions, to such an extent that great confusion and doubt arise to plague shippers and the claim agents of the railroads. The precise

language which the joint committee worked out would undoubtedly clear up nine-tenths of the difficulties that arise in settling loss or damage claims with the carriers.

One of the most troublesome questions is the value of goods lost or damaged. The railroad claim agent naturally wants to compromise, and takes advantage of any doubts that enable him to delay settlement for months or years, until the shipper will make concessions. His business is to save all that he can for his road, and many carriers have followed the rule, in settling for manufactured products, to demand the manufacturer's cost of reproducing the goods. This may have been reasonable in the old days when raw materials were more plentiful than customers, but it is not fair to the shipper to-day. Anything that leaves the value in doubt or dependent upon a compromise places the shipper at the mercy of the claim agent.

The joint committee agreed that the invoice price at place of shipment, including freight if prepaid, was the fairest basis for settlement. This is something precise and easily determined, and takes away from the claim agent the inducement to hang up claims and keep the shipper waiting indefinitely. It is in line with the Carmack amendment to the Hepburn act, which makes the initial carrier responsible for all claims for loss or damage. It is also in line with the present custom in nearly all manufacturing industries, and in the jobbing trade, where the shipper takes care of the claims of his customers. The retail hardware dealer, for example, is placed at a great disadvantage in trying to collect from a railroad for loss, damage or overcharge in freight, as he cannot know all the tricks and turns of the claim agent; but the manufacturer or jobber has an expert traffic man in his employ to follow up these matters.

Different Conditions in Grain and Cotton Trades.

In the grain and cotton trades conditions are reversed. It is the country merchant or buyer who does the shipping, and the product is received by large firms at central markets or at the seaboard, who might be called "receivers" as distinguished from manufacturers and other "shippers." These commodities are sold on public exchanges, and the consignee generally sells each car for future delivery as soon as he receives advices of shipment. If a car is lost in transit or damaged so that the commodity would not be accepted on the exchange, the consignee must buy in to cover his contract, and if the market has advanced, the invoice price at the place of shipment does not cover his loss. The grain and cotton men maintain vigorously the claim that they are entitled to recover their full loss from the carrier. It would seem as though their grievance, if sustained by the commission, might be settled by an amendment to the present document, to provide that if the consignee elects to settle with the delivering carrier (instead of shipper settling with initial carrier) the value shall be the market price at the time of delivery, or at the time when delivery should have been made. This would not disturb the rights of manufacturers and other shippers, who prefer to settle with the initial line at invoice price.

The Claim Agent's Bill of Lading.

There was presented to the commission as a substitute for the document prepared by the joint committee a so-called "clean" bill of lading, which is simply a receipt by the carrier, agreeing to deliver the goods at destination "in like good order." This was indorsed by the grain and cotton interests and will be pressed strongly before the commission. It leaves all questions of claims to be settled in accordance with law in each State. The objection to it, from the standpoint of the manufacturer, is that a firm doing business all over the United States cannot know what the law is in every case where loss or damage may occur.

Its chief advantage is that the claim agent of the railroad would have things all his own way in dealing with the ordinary shipper, and could force a compromise on nearly every claim that could not be otherwise disposed of. It was not generally known at the hearing and probably was not known to many of the interests which indorsed it, that this proposal originated in the fertile mind of the claim agent of a leading Western railroad,

who holds a high position in the National Association of Claim Agents.

Petroleum in 1906.

The production of petroleum in the United States during the year 1906 according to W. T. Griswold of the United States Geological Survey, was 126,493,936 barrels, having a total value of \$92,444,735. This output was furnished as follows: Appalachian field, 27,741,472 barrels; Lima-Indiana-Illinois field, 21,951,711 barrels; Mid-Continent field, 21,718,648 barrels; Gulf field, 21,645,425 barrels; California field, 33,098,598 barrels, and from scattered States and areas, chiefly Colorado and Wyoming, 338,082 barrels.

The State production is shown in the following table:

Quantity and Value of Crude Petroleum Produced in the United States in 1906, by States.

State.	Quantity. Barrels.	Value.	Aver. price per barrel.
California	33,098,598	\$9,553,430	\$0.289
Colorado	327,582	262,675	.802
Illinois	4,397,050	3,274,818	.745
Indiana	7,673,477	6,770,066	.882
Indian Territory.....	21,718,648	9,615,198	.443
Oklahoma			
Kansas	1,213,548	1,031,629	.850
Kentucky			
Tennessee	9,077,528	3,557,838	.392
Louisiana			
Michigan	3,500	4,890	1.397
Missouri			
New York.....	1,243,517	1,995,377	1.605
Ohio	14,787,763	16,997,000	1.149
Pennsylvania	10,256,893	16,596,943	1.618
Texas	12,567,897	6,565,578	.522
West Virginia.....	10,120,935	16,170,293	1.598
Wyoming	*7,000	49,000	7.000

* Estimated.

As to the rank of the various States in the production of petroleum, California furnished nearly one-fourth of the total output and still holds first place as to quantity, and Kansas, Indian Territory and Oklahoma jointly hold second place. If the production of these States were separated, however, it is probable that Indian Territory would fall into seventh place, while the other two would be much farther down in the list. Ohio occupies third place and is followed by Texas, Pennsylvania, West Virginia, Louisiana, Indiana, Illinois, New York, Kentucky, Tennessee, Colorado, Wyoming, Michigan and Missouri, in the order named.

In value of oil produced Ohio stands first with Pennsylvania and West Virginia second and third. Kansas, Indian Territory and Oklahoma, jointly, have fourth place, and California fifth. The order of the other producing States in value of output is: Indiana, Texas, Louisiana, Illinois, New York, Kentucky, Tennessee, Colorado, Wyoming, Michigan and Missouri.

The greater part of the oil from the California and Gulf fields is consumed as fuel, but only a small proportion of that produced in other fields is so utilized. Any of the oils can be made to produce more or less of a commercial product.

Joseph R. Ford and Arthur C. Wellington have been appointed receivers for the South Baltimore Steel Car & Foundry Company, Baltimore, Md., which has an authorized capital stock of \$1,500,000. It is stated that the company's assets are fully equal to the liabilities which approximate \$1,000,000. The embarrassment is said to be due to the inability of the company to make collections promptly for cars delivered to the railroads. It has contracts for cars on hand sufficient to keep the plant running for some time, and it is probable that the plant will be continued in operation. The earnings last year showed up well, the gross being about \$9,000,000 and the profits exceeded \$500,000.

The receivers of the Westinghouse Electric & Mfg. Company have ordered the treasury department of the company moved temporarily from 111 Broadway, New York, to East Pittsburgh, Pa., so that financial matters can be more easily handled. This removal is of no special importance.

Steel Rail Specifications.

Pacific Attitude of the Railroads.

As told in *The Iron Age* of October 31, the majority and minority reports of the American Railway Association's Committee on Standard Rail and Wheel Sections were withdrawn by the Executive Committee from consideration by the convention held in New York last week. This technically removes the subject from discussion, so far as the association is concerned, for the present. It is expected, however, that the experts whom the association will employ to take up the questions of chemical composition of rail steel and the amount of discard from rail ingots, will make a report at the semiannual meeting, to be held in New York in April, 1908. The action of last week's convention in sanctioning new rail sections, one set of these giving relatively heavier flanges than heretofore, while increased weights are provided, running up to 120 lb. to the yard, pertains to that part of the Rail Committee's work on which there was substantial agreement between the rail mill and railroad conferees at the joint meetings of some weeks back. While the questions of phosphorus and discard are still pending there are indications that the majority of the Railroad Association's committee appreciated fully the position of the steel manufacturers. The following, from the majority report, confirms the statements made from time to time as to the candor and tolerance which prevailed in the councils of the two important interests:

THE QUESTION OF CHEMISTRY.

In the matter of chemistry specifications for Bessemer rails, there is a strong desire on the part of the railroad members to specify a lower phosphorus content than has been generally accepted in recent years; but the testimony of the manufacturers was to the effect that the available supply of low phosphorus ores would make it impossible to manufacture more than a small percentage of the total rail requirements of the country to a maximum phosphorus limit less than 0.10, and the manufacturers, on this account, unanimously object to the incorporation in the Bessemer rail specifications of anything suggesting the adoption of 0.085 phosphorus.

There was a desire on the part of the railroad members to arrange for a greater discard, and a strong disposition to insist upon a uniform minimum percentage. The manufacturers, however, presented considerable evidence which tended to show that a fixed minimum percentage requirement would be not only unfair but unscientific, claiming that the extent of piping and segregation is influenced by the size of the ingot, the rate of pouring into the mold, and other details of mill practice.

The joint committee finally agreed unanimously upon two distinct types, that they could recommend for adoption, both of which were designed in accordance with the cardinal principles enunciated by the subcommittee.

INCREASED WEIGHT NOT A CURE.

With regard to weight of section, the subcommittee presents sections running under 120 lb. per yard in weight. It should be remembered that probably not 3 per cent. of the total main track mileage of the country is laid with rails weighing more than 90 lb. per yard, while there are many thousands of miles of track on first-class lines, where the heaviest engines are used, with rail weights ranging from 70 to 85 lb. per yard; also that it is a generally expressed opinion of railroad men that the older rails of the lighter sections are giving more satisfactory service.

In the light of this experience, railroad men have naturally hesitated to order rails of heavier section, and it is this experience also that is responsible for the prevalent feeling among railroad men that modern mill practices are at the bottom of their difficulties.

On the other hand, the manufacturers claim that this charge has not been proven, for the reason that statistics as to comparative wear have not always included carefully compiled statistics as to tonnage and other conditions, and that reports of breakages and failures are not to be depended upon, because of the lack of uniform nomenclature among track men of different roads. This latter criticism as to statistics your committee feels is well grounded.

The question of specifications for open hearth rails was not reached by the subcommittee, but will be taken up later.

The Minority Report.

Julius Kruttschnitt, director of maintenance and operation of the Union Pacific Railroad, signed the minority report, which called for 0.085 phosphorus and a fixed minimum of discard. He took up first the increase in rail breakages, which he contended had been marked in recent years, and considered that they were due to three principal causes: 1. Improper chemical composition, due either to improper specifications or to segregation.

2. Insufficient discard, causing concealed defects, which result in breaks in service, sometimes with, but frequently without, warning. 3. Too great haste in manufacturing of rails, which are finished at too high temperatures, due partly to faulty distribution of material in cross sections and partly to improper manipulation or work on the head in the rolls. On the matter of sections Mr. Kruttschnitt's report took this position:

Your committee has been convinced by the manufacturers that a change in the sections whereby the metal would be more equally distributed between the base and the head, thereby allowing rolling to be done at a lower temperature, would be beneficial. Two sets of sections are submitted herewith and recommended for adoption, our preference being strongly for those in designing which great weight was given to the consideration of the rail as a girder and its function to distribute a load over a number of supports. To do this efficiently it must be stiff; that is, deep. These sections have high moments of inertia, and for the same weights are much stiffer, admit of very much stiffer splice bars, and will therefore make smoother riding track than the other sections.

Better Reports on Broken Rails.

The convention last week gave practical effect to the portion of the majority report above quoted, relating to the shortcomings of statistics of broken rails as now collected. The unreliability of many reports of rail breakages was granted, and the convention adopted a uniform and thorough-going form or report on broken or failed rails. Fifty different details are called for by this blank. The various terms applying to rail failures are defined, particularly "broken rail," "split end or split head," "mashed head," "battered end or battered top," "crack in web or crack through bolt holes," and "broken base." The last designation includes "half moon shaped break in base," "end break in base," and "split base." The adoption of this form of report will work a needed reform in the character of data available as to rail failures, and insure a better agreement as to facts in future discussions between users and manufacturers.

A Unique Business Letter Form.

A practice that has much to commend it is followed by the Adams Company, Dubuque, Iowa, in its business letters. The first departure from customary usage is the placing of the name of the addressee and the address at the right of the letter directly under the date, instead of at the left; if the letter is for the attention of an individual that individual's name is placed at the left, in the usual place. The letter is then taken up without the usual salutation of "Dear Sir" or "Gentlemen," and similarly the formality of "Yours truly" or its equivalent is omitted from the end. In so doing the company has decided to no longer pay tribute in time and space to a custom that long since lost its significance and persists as a remnant of the effusive politeness common when letters were not such a large factor in business as they are to-day. The company has educated its stenographers to answer many letters without dictation, the purpose being the saving of time. If there are further points that the signer thinks should be covered he can dictate these and have them added to the letter, as it has not been closed in the regular way. The name of the company and the signature of the signer is impressed at the bottom of the letter with a rubber stamp. The advantage of putting the name on the right side of the letter is that it can be more easily found in consulting the correspondence in letter files, and the same applies to other papers, on which the important items, such as dates, numbers, names and signatures are always placed on the right hand side. The president of the company, Eugene Adams, expresses the wish that others will adopt the plan on the strength of its merits, and soon make it so universal that it will cease to seem peculiar.

The Jamestown Exposition is in danger of being placed in the hands of a receiver. The National Meter Company, New York, has asked that a receiver be appointed.

The Steel Corporation Secures the Tennessee Coal, Iron & Railroad Company.

One of the most important and surprising developments of the present week in the troubled financial situation in New York is the passing of control of the Tennessee Coal, Iron & Railroad Company to the United States Steel Corporation. Rumors to the effect that this was one of the matters under consideration at the all-night conference of bankers and officers of the Steel Corporation, held at J. P. Morgan's residence Sunday and Monday, were given credence on Monday, and an interesting phase of the negotiations was a visit made to the White House at Washington by Chairman E. H. Gary and H. C. Frick, representing the Steel Corporation. The only definite official statement thus far made is the following given out by Judge Gary Tuesday night:

"The United States Steel Corporation has been negotiating for the purchase of a majority of the stock of the Tennessee Coal, Iron & Railroad Company at par. The same price will be paid for all additional stock offered within 15 days. The contract has been concluded by the Finance Committee of the Steel Corporation, subject to formal ratification by the Board of Directors, which will meet at 4 o'clock Wednesday, November 6.

"By the acquisition of this property the Steel Corporation will increase its capacity by about 2½ per cent., making its capacity about 60 per cent. of the total production in the United States. It is believed the purchase will eventually be of great benefit to the corporation and to the steel industry."

The conditions leading to the transfer of control, it may be said, are entirely the result of the developments relating to certain banking and trust companies in New York City, and certain officers of such companies. The tying up, under a pool arrangement, of a large majority of the stock of the Tennessee Company since its acquisition by a syndicate two years ago, and the necessities of particular members of the pool whose holdings were used as collateral, were known to constitute one of the dangers of the financial situation. Grant B. Schley, John W. Gates, George A. Kessler, Oliver H. Payne, L. C. Hanna, E. W. Oglebay, Oakleigh Thorne, E. J. Berwind, H. S. Black, James B. Duke, and Anthony N. Brady have been known as members of the Tennessee Company pool, but in the case of some of those named their holdings were paid for and were not represented in the stock transferred this week. It is understood that in the negotiations Grant B. Schley and Oakleigh Thorne represented the members of the pool whose stock was sold.

While the executive committee of the Republic Iron & Steel Company is identical with that of the Tennessee Coal, Iron & Railroad Company, the former company is not affected by the transfer that has taken place. Its stock, though controlled by members of its directorate, is widely held, in contrast with that of the Tennessee Company, in which there have been exceedingly few transactions in the past 22 months. For a time last year it was quoted at 160, but for some months has been regularly quoted at 135.

The Last Previous Change of Control.

The interests that have been recently in control of the Tennessee Coal, Iron & Railroad Company were prominent in the Republic Iron & Steel Company previous to their acquisition of the majority of the stock of the Tennessee Company. In December, 1905, what was then spoken of in financial circles as the Guthrie-Gates-Schley party, was announced to have acquired the majority of the stock of the Tennessee Company by purchases in the open market. On December 19, 1905, John W. Gates, C. S. Guthrie, L. C. Hanna, E. W. Oglebay, Grant B. Schley, S. G. Cooper, E. J. Berwind and Oakleigh Thorne, representing the new controlling interest, were elected directors of the Tennessee Coal, Iron & Railroad Company. The late C. S. Guthrie was elected chairman of the Board of Directors, and at that time Mr. Guthrie made this statement:

The new interests entering the board of the Tennessee Coal Iron & Railroad Company are in absolute control of the property. We have bought control of the corporation with the object of developing it and bringing the property up to the highest degree of efficiency. Considerable money will be spent for extensions, improvements, &c. As to the merger of the Tennessee Company with the Republic Iron & Steel Company, that is a question of the future.

The financial statement for the year ending December 31, 1905, showed that the capitalization of the company on that date was as follows:

Common stock.....	\$22,553,060
Preferred stock.....	248,300
Bonded debt.....	14,716,000

In March, 1906, President John A. Topping of the Republic Iron & Steel Company was elected chairman of the Tennessee Company, succeeding Don H. Bacon. He appointed as his assistants T. J. Bray and T. W. Guthrie, who were his assistants as president of the Republic Company. Frank H. Crockard was made vice-president and general manager at Birmingham, Ala. The Executive Committee of the Tennessee Company was reduced from seven to five members, and the following were elected: John A. Topping, Grant B. Schley, L. C. Hanna, John W. Gates, E. W. Oglebay. This committee is as it stands to-day, and the same persons constitute the Executive Committee of the Republic Iron & Steel Company.

Over \$7,000,000 in Improvements.

One of the first acts of the new management was the decision to issue the remainder of the \$30,000,000 of authorized capital stock. In the spring of 1906 \$3,500,000 of the additional amount was issued, and within a few months improvements were laid out calling for all this money. Then about \$3,800,000 more was issued, the remainder of the full \$30,000,000, quarterly payments on this extending into the present year. On October 16, 1906, at a meeting at Tracy City, Tenn., an increase in the common stock from \$30,000,000 to \$50,000,000 was authorized. Under this latest authorization an issue of \$3,750,000 was decided upon some time ago and \$640,000 has already been paid in. The extensive programme of improvements made possible by this large provision of cash marked a new era in the history of the company, this being the first time in its career when money was available to develop either mineral properties or finishing plant adequately. The rebuilding of the blast furnaces at Ensley, Ala., on modern lines was begun and this work has proceeded to the extent of entirely reconstructing Nos. 4, 5 and 6 furnaces of this group, the plan being to take the others in turn. At all the iron and coal mines of the company improvements were made adding to their output. At Ensley in the past 18 months work has been under way on a new open hearth steel plant, to be operated under the duplex process, consisting of four 65-ton furnaces, two 20-ton converters and a 250-ton primary furnace. This year a new rail mill at Ensley was authorized, and work on it is still in progress. Two of the new open hearth furnaces and one of the new Bessemer converters were started up about two weeks ago. The four large new furnaces with the converters were expected to give a yearly capacity of 300,000 tons of steel. The old plant of 11 50-ton open hearth furnaces, capable of about 300,000 tons a year, was to be torn down, several furnaces at a time, according to the programme, and in their place four more 65-ton furnaces erected, the intention being to have an effective capacity of 50,000 tons of steel a month.

An important step taken by the new owners of the Tennessee property in 1906 was the reacquisition of the Birmingham Southern Railroad Company, largely an inter-property road which a former management had sold jointly to the Louisville & Nashville and the Southern Railway companies. On this repurchase there are still outstanding \$1,101,849 in notes. Last year, also, the Tennessee Company, jointly with the Republic Iron & Steel Company, acquired the Potter Red Mountain ore

properties, containing 70,000,000 to 80,000,000 tons of practically self-fluxing red ores. On this purchase there are outstanding \$700,000 of 5 per cent. bonds, jointly guaranteed by the two companies.

The production of the Tennessee Company in various lines has been as follows in gross tons in the past three calendar years:

	1904.	1905.	1906.
Iron ore.....	1,208,038	1,436,282	1,483,476
Coal (net tons).....	2,756,300	2,231,659	3,007,657
Coke (net tons).....	871,532	890,634	1,186,872
Pig iron.....	475,314	529,036	641,887
Steel products.....	155,266	402,318	401,882

Of the pig iron production of the company about 60 per cent. enters into steel and a larger proportion will go to steel as steel making capacity at Ensley increases.

The Purchase Approved.

The directors of the United States Steel Corporation, at a meeting at 71 Broadway, New York, Wednesday afternoon, received the report of the Finance Committee confirming the negotiations for a controlling interest in the stock of the Tennessee Company. After the meeting Chairman E. H. Gary gave out the following statement: "The Board of Directors unanimously approved the action of the Finance Committee in the purchase of the stock of the Tennessee Coal, Iron & Railroad Company." It is understood that the purchase price of something more than \$15,000,000 of the common stock of the Tennessee Company was on the basis of 1.19 sinking fund 5 per cent. \$1000 bond of the Steel Corporation for 10 shares of stock, par value \$100, of the Tennessee Company. A valuation of 84 is put upon the bond in the transaction. Thus the stockholders of the Tennessee Company receive approximately \$119 in bonds for \$100 of stock.

It is estimated that the iron ore and coal reserves of the Tennessee Company are 700,000,000 tons and 2,000,000,000 tons, respectively.

The World's Greatest Iron Ore Pit.

DULUTH, MINN., November 1, 1907.—The Mahoning mine, western Mesaba, will run its total this year up to about 1,650,000 tons. This will be the mine's heaviest year. Recently the company has let a stripping contract to the Drake & Stratton Company for 800,000 cu. yd., to be taken off Mahoning No. 2. In addition to this the company is just now stripping with four of its own shovels on the east of its main pit, toward the village of Hibbing. Few people realize the immensity of stripping operations around Hibbing, and what they will mean for the future. Ultimately the Mahoning will be stripped clear from its western boundary to the village, along the north tier of forties of sections 1 and 2. The Sellers stripping will come from the east to meet this right through the village. To the north, and adjoining, will be the stripping of the Burt and Pool mines. To the south of Mahoning will be the Mahoning No. 2, on which work is under way; the Hull, which will this year ship well up to 3,000,000 tons of ore, and the Rust, which will bring the open pit nearly to the west side of the village south of the old county road. This will all mean a pit, owned by several operators, more than 2 miles long and about a mile wide from north to south—all ore. There will be no such pit anywhere else in the world, and probably no such body of ore will ever lie exposed for steam shovel mining.

The Minnesota tax commission has sent a request to mine operators and explorers asking them to furnish it with blue prints of explorations, &c., that they may carry on in future. The purpose is that the commission may be informed of the results of all development work and be able to place new finds on the tax lists. There has been some talk of asking the courts to adjudge the fairness of the tax commission's valuations of mines, but nothing definite has yet come of it. The Buffalo & Susquehanna mine, for example, is assessed on the basis of 26,000,000 tons, but it would be very hard for the commission to prove so great a tonnage of merchantable ore

as that. All these tonnages are estimated, anyway, and should have been scaled at least 20 per cent. for possible rock inclusions, &c.

The Republic Iron & Steel Company began this week shipments from a new mine, its Onondaga. This is a 25-acre tract in the northwest of southwest of section 4-58-17. Only about 2500 tons will be sent forward this fall. The ore is very low in phosphorus, running down to 0.018 and 0.020 per cent., and fairly high in iron. It will be mined underground.

October Shipments Heavy.

Iron ore shipments for October were the heaviest ever known for that month. The Duluth, Missabe & Northern road has had a total movement of 2,450,000 tons, the Duluth & Iron Range 1,225,000 tons and the Great Northern about 1,000,000 tons. This will make the October shipments from all Lake Superior ranges not far from 6,000,000 tons. The October business of the Missabe road exceed its preceding record month by 250,000 tons, and its last October by 630,000 tons. This road will have moved during the present season of navigation the total of 12,800,000 tons, which, though 1,200,000 tons under its early season allotment and schedule, is a tremendous quantity for a 200-mile line in nine months. On its iron ore traffic alone this year the Missabe road will earn gross \$10,260,000, and it is the general impression that a much larger share than is customary among roads is profit.

The United States Steel Corporation's monthly payroll at Duluth and in St. Louis County is in excess of \$1,000,000, of which the mines pay some \$600,000, the roads the remainder. It is impossible to secure cash with which to meet this, either in the way of drafts on New York or from local banks, though the corporation's local companies have large cash balances both in the East and here. It is proposed to meet these payrolls by the issuance of checks in denominations of \$2.50 and multiples thereof, using a little real money where absolutely necessary. The difficulty of this situation has already been felt in the lumber shipping industry here. It is the custom of vessel owners to send their ships to Duluth without funds on hand, relying on the banks here to advance cash required to pay off crews and for loading charges. For a day or two longshoremen and crews accepted bank paper and cashiers' checks, but as soon as they found these tokens unappreciated in saloons where they had been in the habit of cashing them, they refused to accept them and stopped loading ships. So the lumber vessels are temporarily tied up, and the supply that has been bought by Eastern yardmen and consumers, and paid for, is not going forward, while the season in which it can be shipped is rapidly drawing to a close.

On the Old Ranges.

The Niagara Mining Company, operating the old Ohio mine, west of Michigamme, Mich., on the Marquette range, will sink a shaft on the adjoining Portland ground at once, and hopes to ship ore next year. This district has never looked as well as now. For many years it has been considered worthless for iron ore. Now the Niagara Company is working 150 men at its Ohio mine and the Cleveland-Cliffs 100 at its Imperial. The Oliver Iron Mining Company has several camps in the vicinity, with from 50 to 60 men at work. The ore runs about 50 per cent. in iron and requires crushing.

The Interstate Iron Company (Jones & Laughlin Steel Company) has taken over the St. Clair exploration on the Dickie tract, about 4 miles west of Florence, Menominee range. The shaft is now down some 100 ft. and is in low grade ore. It will be sunk at least 200 ft. further in the hope of finding a better grade and a considerable quantity of ore. At the Lake Angeline mine of the Jones & Laughlin Steel Company little is doing and shipments for the year will be smaller than for many years. For some time nothing but taking out small pillars has been under way. The mine has produced more than 7,500,000 tons of ore since its beginning, in the early 60's. It is operated through one main shaft 700 ft. deep and a subshaft 290 ft. deep.

D. E. W.

PERSONAL

John Sample, Jr., for 38 years connected with the Jones & Laughlin Steel Company, Pittsburgh, and for many years its cashier, resigned last week and will retire. The officials of the company presented him with a fine watch, suitably engraved, and the office force gave him a library chair and a reading lamp. F. D. Cummings succeeds him as cashier.

Robert Lindenthal has resigned as manager of the Arthur Koppel Company, 66-68 Broad street, New York, and will remove to Berlin, Germany, where he will establish an agency for American manufactures.

A. J. Strong of the Niles-Bement-Pond Company has been appointed as Pratt & Whitney representative in eastern Michigan, with headquarters at Detroit.

Andrew Carnegie this year declined to become a candidate for rector of the University of St. Andrew's, Scotland. He had served in that capacity three terms.

Charles N. Dannals has been appointed district sales agent in charge of the Atlanta office of the Jones & Laughlin Steel Company, succeeding Frank Harrison, resigned.

Henry Gauerman has been appointed general manager of the Braddock Foundry & Machine Company, Braddock, Pa., to succeed W. F. Lewis, resigned.

William S. Pilling, of Pilling & Crane, Philadelphia, sailed November 6 for a short trip to Bermuda.

W. W. Williams of the Salem Iron Company, Leontonia, Ohio, becomes furnace superintendent of the Jackson Iron & Steel Company, Jackson, Ohio, December 1.

Illinois Steel Company Records.

October was a month of extreme activity in all of the various plants of the Illinois Steel Company, as is evidenced by the fact that the production records of its several mills and furnaces exceeded without exception the best monthly tonnage records heretofore made. The total production of the South Works was 9945 tons in excess of that of any previous month, while that of the Milwaukee Works showed a similar increase of 2676 tons. The record in detail is as follows:

	Output for October. Tons.	Best previous record. Tons.
South Works:		
Pig iron.....Month.	127,078	124,931
Bessemer ingots.....24 hr.	4,155	3,981
Bessemer ingots.....Month.	98,183	96,469
Basic ingots.....Month.	80,661	79,888
Total ingots.....Month.	178,844	176,357
Rail mill.....Month.	77,548	74,959
Blooming mill, No. 1.....Month.	38,180	36,621
Structural mill.....Month.	21,730	21,043
Total finished product.....Month.	133,259	123,314
Milwaukee Works:		
8-in. train.....Month.	3,611	3,070
No. 1, 9-in. train.....Month.	3,405	3,333
No. 2, 9-in. train.....Month.	4,368	4,138
12-in. train.....Month.	6,724	4,489
21-in. train.....Month.	6,430	5,767
All mills.....Month.	29,078	26,402
Joliet Works:		
Pig iron.....Month.	47,742	47,186

Quite a considerable number of records of production were broken by different plants of the other subsidiary companies of the United States Steel Corporation. The comparisons are made with the past achievements of each individual blast furnace, steel plant, or rolling mill, so that it does not necessarily follow that a record for any particular type of plant has been made. Thus Furnace I of the Edgar Thomson plant produced 16,138 tons in October, as compared with 14,921 tons, its previous record, but other furnaces of the works have made over 21,000 tons. Among the more generally interesting figures, however, are that open hearth plants Nos. 3 and 4, at Homestead, produced 125,000 tons of ingots, as compared with their former best record of 114,000 tons. A number of the slabbing and plate mills at Homestead have done better than ever before. The American Steel & Wire Company broke 32 records in October.

The Union Pacific Railroad's Testing Laboratories.

Among the most complete railroad testing laboratories in the country are those recently installed at the new Omaha shops of the Union Pacific Railroad Company. The laboratories occupy part of the new shop office building, the offices of the chemist and engineer of tests and the test room on the ground floor being connected with the chemical laboratory on the second floor by an electric elevator. The walls of both laboratories are of pressed brick and the ceiling is of wood, to eliminate as far as possible trouble and annoyance from fumes.

In the test room the machinery, all of which is electrically driven, includes a 250,000-lb. automatic machine for tensile tests. The records of this machine are made autographically. A similar 50,000-lb. automatic machine and a milling machine, shaper, lathe, drill press, hack saw and bench grinder, are also part of the equipment of this room, which includes a complete set of apparatus for testing cement and soapstone storage tanks. The room is lighted with mercury vapor lamps. For conveying material to the testing machines there is a tramway with chain hoists.

Every modern device for use in the work for which it is intended is included in the equipment of the chemical laboratory. In addition to the main room there are several special departments for photographic work, bacteriological investigations, electric experiments, a balance room and a stock room for chemicals and supplies. The tables are covered with vitrified tile and the walls of the hoods are lined with white glazed tile.

Besides the routine testing, inspection and analysis of various materials to ascertain if they conform to the company's specifications, its laboratory workers are constantly engaged in original investigations, both chemical and physical, into the properties of the various materials that come into railroad engineering. One unique investigation carried out by this department was a study of weed growth, the results of which partly determined the design of the company's gasoline weed burner.

The organization of the inspection and test bureau, under the chief chemist and engineer of tests, is as follows: An assistant engineer of tests and four resident inspectors in charge of the physical laboratory; an assistant chemist with four analysts; a photographer and bacteriologist in charge of the chemical laboratory; two traveling chemists who supervise the operation of water treating plants. The nonresident force is divided into a number of districts in charge of resident inspectors.

The Weber Foundry Company, Cincinnati, is bankrupt by petition of creditors. It is understood that the Wessling Brothers, former owners of the plant, and the Domhoff & Joyce Company were the principal petitioners and largest creditors. The statement of condition, dated October 31, 1907, showed assets of \$54,397.65, with indebtedness of \$43,744.70. Messrs. Domhoff, Lodge and the Brighton German Bank were named a committee with power to arrange affairs. The Weber foundry made all the castings for the Lodge & Shipley Machine Tool Company, thus having one of the most valuable contracts in the locality. The plant is to be closed down and remain in charge of the committee until a suitable purchaser can be found.

Major Collins, long prominent in the Western iron trade, died at Brazil, Ind., October 24. He passed his boyhood at Troy, N. Y., and went to Cleveland, Ohio, in 1859, becoming superintendent of a rolling mill. He continued to be connected with local operations in that line until 1868, when he removed to Brazil, Ind., where he became the principal owner of a rolling mill and managed its affairs successfully for many years.

The Niles Boiler Company, Niles, Ohio, advises us that the report that it would increase its capital stock and would make large additions and improvements to its plant is untrue.

NEWS OF THE WORKS.

Iron and Steel.

The one furnace of the Allentown Rolling Mill Company, Allentown, Pa., which has been in blast since December, 1906, was blown out this week.

The No. 4 furnace of the Pennsylvania Steel Company at Steelton, Pa., went out of blast October 26.

No. 4 furnace of the Lackawanna Steel Company, Buffalo, N. Y., was blown out October 10. The No. 5 furnace of the same group was blown out October 26.

The No. 2 furnace at the South Works of the Illinois Steel Company was blown in October 14.

The No. 2 furnace of the Shenango Furnace Company, Sharpsville, Pa., went out of blast October 4, and will not be again blown in.

The blast furnace of the Williamson Iron Company, Birmingham, Ala., was blown out October 11.

The Lake Superior Iron & Chemical Company, largely owned by the Berry varnish people, has been engaged for some months in rebuilding and enlarging the old Chocoy charcoal blast furnace. Nearly \$150,000 has been spent in the reconstruction and in new and better machinery. A large battery of by-product kilns has been completed and an electric lighting plant installed. The men about the furnace have been laid off, however, a change having been made in the plans of the company that will necessitate the closing of the works for some little time.

Four new soaking pit furnaces are being added to the Bessemer steel plant of the Youngstown Sheet & Tube Company, Youngstown, Ohio.

The two Columbus, Ohio, furnaces of the Carnegie Steel Company were blown out November 1. Furnace B of the Lorain, Ohio, group of the National Tube Company is out for relining.

Of the Wheeling District furnaces of the Carnegie Steel Company two of the Bellaire, Ohio, group were blown out November 1, one Mingo furnace on the same day and the Steubenville furnace on October 25. The Bessemer steel plant at Bellaire has also been closed down.

Allegheny furnace of the Allegheny Ore & Iron Company, at Iron Gate, Va., was blown in October 28.

No. 3 furnace of the Carnegie Steel Company, South Sharon, Pa., was blown out October 24.

The Niles, Ohio, furnace of the Carnegie Steel Company was blown out November 1. No. 3 furnace of the Ohio group of this company at Youngstown, Ohio, was blown out October 27.

Furnace A of the Northwestern Iron Company, Mayville, Wis., went out of blast October 27.

The Jackson Iron & Steel Company, Jackson, Ohio, expects to blow in its new furnace about January 1.

Sam Lanham furnace, Rusk, Texas, which has been running on coke iron for some months, was banked for repairs on October 19.

No. 1 Henry Clay furnace of the Empire Steel & Iron Company, Reading, Pa., was blown out October 31.

The one furnace of the Tennessee Coal, Iron & Railroad Company, at Oxmoor, Ala., which has been in operation for some months, was blown out for relining October 27.

No. 1 furnace of the Sloss-Sheffield Steel & Iron Company, Birmingham, Ala., was blown out October 5.

General Machinery.

The Vulcan Iron & Steel Works, Milwaukee, Wis., has been incorporated with a capital stock of \$35,000 by Christ. Stein, John E. Kelly and Angus J. Koegler.

The Chain Belt Company, Milwaukee, Wis., manufacturer of conveyors, will move into its new machine shop this month.

The Hisey-Wolf Machine Company, Cincinnati, Ohio, manufacturer of portable electric tools, is moving into its new shops on Township street, Corman avenue and the canal, which have just been completed. The plant consists of three buildings on a lot 145 x 165 ft. The main shop is a model one of two stories in height, with light on four sides. The offices and power plant are in separate buildings. The company has had a wonderful growth in a short space of time and is an aggressive leader in its particular field.

Krauter & Co., Inc., Newark, N. J., have completed an addition to their drop forge shop, covering 6500 sq. ft. of floor space, which is equipped with modern tools, including one of the most powerful hammers made, and is in charge of one of the most practical forgers in the country. This addition will enable the company to furnish promptly high grade drop forgings to manufacturers of tools and automobiles who have heretofore found it difficult at times to secure high quality of drop forgings.

It is stated that the Galveston, Houston & Henderson Railroad has commenced work on the woodworking shop in connection with its proposed new group of shop buildings at Galveston, Texas.

An item recently printed in these columns concerning the Topeka Foundry & Machine Company, Topeka, Kan., was somewhat misleading in stating that it manufactures the sub-surface packer. The company manufactures a pulverizing and surface packer, the machine called the Sub-Surface being manufactured by another company.

The Reinecke-Wagner Pump & Supply Company recently organized by E. T. Reinecke and E. M. Wagner, will establish salesrooms, warehouse and offices at 420 First avenue, Pittsburgh, for handling the products of the Goulds Mfg. Company, Seneca Falls, N. Y., manufacturer of power pumps; Mast, Foss & Co., Springfield, Ohio, hand pumps and windmills; Trahern Pump Company, Rockford, Ill.; American Well Works, Aurora, Ill., and the Domestic Engine & Pump Company, Shippensburg, Pa. Mr. Reinecke was formerly secretary of the Reinecke-Wilson Company, Pittsburgh, and had charge of the pump department. Mr. Wagner has been Pittsburgh manager for the Goulds Company for several years past.

In the courts at Pittsburgh, proof of public notice of a receiver's sale was filed and the sale of the Fischer Foundry & Machine Company ordered confirmed in the case of the Baird Machinery Company against the Fischer Foundry & Machine Company. It is set forth that the sale of the property located in Ford City, Westmoreland County, Pa., realized \$3900 in excess of a mortgage of \$150,000 against the property. The Real Estate Trust Company was the receiver.

Power Plant Equipment.

The Parker Boiler Company, Philadelphia, Pa., has recently received an order from the Southern Pacific Railroad for 12 645-hp. boilers and superheaters, to be installed in its new power plant at Oakland, Cal.; also an order from the University of Pennsylvania for two 468-hp. boilers.

The Shelton Water Wheel & Machine Works is being organized at Richmond, Va., by capitalists of that city, including Warner Moore and the inventor, James L. Shelton, to manufacture the Ajax turbine water wheel, for which many advantages are claimed.

The Coos Bay Electric Company, Mansfield, Ore., is planning to largely increase the capacity of its plant, for which some of the equipment has been purchased, including a 360-hp. Corliss engine and another dynamo. No other purchases will be made until financial conditions become easier.

The Joplin & Pittsburg Railroad Company, Pittsburg, Kan., is to make a number of improvements, to include the erection of a car barn at Joplin, which will be used for inspection only, the repair work to be done at existing shops at Pittsburg. When the improvements are completed the company will have the following equipment: Scammon, Kan., 300 or 600-kw. steam power; Pittsburg, Kan., 600 kw., either steam or part steam and part hydraulic; Asbury, Mo., 600 kw. in rotaries, taking power from water power plant; Chitwood, Mo., 600 kw. in rotaries, taking power from water power plant.

B. Rutherford, Westinghouse Building, Pittsburg, has plans drawn for a new power plant building, 40 x 70 ft. for the Pittsburg Seamless Tube Company, Monessen, Pa. The building will be of brick and steel and will contain engines, dynamos, &c., aggregating 1000 hp. Bids are now being taken for the equipment.

Foundries.

The Menseling Brass Foundry Company has been incorporated at Milwaukee, Wis., with a capital stock of \$6000. The company will manufacture small brass castings.

The Eagle Casting Company, Winchester, Ky., has been organized with a capital of \$15,000, fully paid up, to manufacture gray iron and semisteel castings. The main building of the plant, now under construction, is 60 x 120 ft., and will be equipped with an electric travelling crane, automatic chipping machinery and sand blast cleaners. The company has secured a contract to supply the Hagan Gas Engine & Mfg. Company with its castings for the coming year, which of itself will provide work enough to keep the plant reasonably busy during the coming season.

Bridges and Buildings.

The Cowing Engineering Company, Cleveland, Ohio, has been awarded the contract for the structural steel work for a new dental building and alumni memorial building to be erected at the University of Michigan, at Ann Arbor, Mich.

The McKeesport Steel Construction Company, McKeesport, Pa., is erecting an open hearth furnace building for the Page Woven Wire Fence Company at Monessen, Pa., and is also building a machine shop for the Canonsburg Steel & Iron Works, Canonsburg, Pa.

Fires.

On October 31 fire caused a loss of \$10,000 to Bartholomew Scannell, owner of the Scannell Boiler Works, Lowell, Mass.

The plant of the King Stove & Range Company, Sheffield, Ala., was damaged \$15,000 by fire October 30.

The foundry at West Bridgewater, near Beaver, Pa., of Dawes & Myler was destroyed by fire November 3, the loss being estimated at \$50,000.

The foundry and machine shop of the Strothman Iron Company, Superior, Wis., were burned last week, with an estimated loss of \$50,000.

The Grand Rapids Clock & Mantel Company's plant at Grand Rapids, Mich., was burned November 3, the loss being about \$50,000.

Hardware.

The controlling interest in the Standard Whip Company, Westfield, Mass., has been acquired by James P. McCarthy, Timothy S. Conway and Charles J. Rooney, who have taken the stock held by Edward H. Pratt. Messrs. Conway and Rooney are experienced whip men, having been connected with the New England Whip Company, Westfield, for a number of years. The new owners will assume immediate charge of the plant.

The United States Wire Mat Company, maker of the U. S. flexible steel wire mats and matting, Decatur, Ill., is now occupying a new plant. Three-phase Westinghouse induction motors are used to drive the machinery, which is all of modern design and especially adapted to the requirements of the work. The company has recently purchased and will manufacture the King fly killer, which was formerly made by R. R. Montgomery & Co.

The Independent Tack Company, Cuyahoga Falls, Ohio, has increased its capital stock from \$5000 to \$25,000.

The Clyde Cutlery Company, Clyde, Ohio, has increased its capital stock from \$30,000 to \$60,000, and has awarded the contract for the erection of an addition to its plant 44 x 63 ft., two stories high.

The Fulton Machine & Vise Company, Lowville, N. Y., incorporated in July, 1905, whose plant was entirely destroyed by fire on May 19 last, has during the past summer erected a new and strictly modern plant, equipped with the latest improved machinery. The machine shop is a two-story building of concrete construction. The plant, which is operated and lighted by electricity and heated by steam, is now in full operation and the company is rapidly filling back orders. The fire came at a time when the plant was being run day and night to fill orders and it was a great setback to the company, but the new plant has a capacity double that of the old, so that the company is now in a position to produce a large quantity of vices. The officers of the company are A. S. Stoddard, president; C. Fred Boshart, vice-president; E. W. Fulton, secretary-treasurer, and the following directors: Messrs. Stoddard, Boshart and Fulton. M. A. Stoddard, A. R. Gebbie, C. D. Moore and J. L. Nefsey. Mr. Fulton, manager, has had a wide experience in the vise business, and T. S. Dibble, superintendent, was formerly connected with the Bagley & Sewall Company for a period of 14 years.

Buck Brothers, manufacturers of edge tools, Millbury, Mass., have recently equipped their plant with a 150-hp. boiler and engine, the addition being made necessary by their large volume of business. Their former equipment was unable to run the plant, which has recently been enlarged by an addition to the forging and grinding department. The boiler was supplied by C. Stewart & Sons, Worcester, Mass., and the engine, of the most approved type, by Wm. A. Harris Steam Engine Company, Providence, R. I. Notwithstanding their weekly production is more than a thousand dozen, Buck Bros. state they are unable to keep up with the constantly increasing demand for tools. They have been in the business for 55 years, and their tools, stamped with a buck's head, have a very wide reputation for quality and workmanship.

Miscellaneous.

The Newton Engineering Company, Milwaukee, Wis., has recently increased its capital stock from \$50,000 to \$100,000. The company has been awarded the contract by Milwaukee County for the building of a new viaduct over the Menominee Valley, the construction to be of reinforced concrete.

The Youngstown Car & Mfg. Company, Youngstown, Ohio, manufacturer of small steel industrial cars, has recently completed a new addition to its plant, consisting of a steel building, 60 x 240 ft., containing a five-ton Morgan electric traveling crane. This will serve as an erecting shop. No additional machinery will be required. The company is busy in its various departments, one of its latest contracts calling for 1000 steel cars for the Ohio Works of the Carnegie Steel Company, Youngstown, Ohio.

The Pittsburgh Automatic Vise & Tool Company, Pittsburgh, has recently received orders for installation of its vices in the shops of the Pennsylvania Railroad, New York Central, Louisville & Nashville, Norfolk & Western and other prominent railroads. The high speed type vices made by this company are found to give good satisfaction in the hard service in railroad shops.

The Tungsten Electric Lamp Company, Cleveland, Ohio, which has a plant on West Fourth street, has been incorporated with a capital stock of \$100,000, by A. C. Garrison and others.

The Jahant Furnace Company, which was organized in Akron, Ohio, about a year ago to manufacture the Jahant furnace for house heating, has decided to locate in Cuyahoga Falls and has awarded a contract for the erection of a warehouse. The company's plant will adjoin the new plant of the Nute Foundry Company, which will make castings for the furnace company.

The Excelsior Stove & Mfg. Company, Quincy, Ill., has started to rebuild the part of its plant which was recently destroyed

by fire, and it is expected that the entire plant will be in operation within the next few weeks.

The W. F. Bossert Mfg. Company, Utica, N. Y., recently incorporated with a capital stock of \$50,000, will manufacture railroad track and signal devices, for which a new plant has been specially erected. W. F. Bossert is president and treasurer; H. C. Williams, vice-president; C. G. Bennett, secretary, and L. W. Bossert, assistant treasurer.

The National Wrought Iron Annealing Box Company, Anderson, Ind., will start work at once upon the construction of a new plant at Washington, Pa., on the tracks of the Baltimore & Ohio Railroad, to take care of Eastern business. The company's plant at Anderson, Ind., has been in operation for 15 years, the product being lap welded annealing boxes for sheet and tin plate mills.

The Holland Furnace Company, Holland, Mich., which was organized less than a year ago, has found it necessary to enlarge its plant and is to build an addition, 101 x 218 ft., which will double its capacity. The company manufactures heating furnaces and coal chutes.

The Best Mfg. Company, Pittsburgh, brass and iron founder and pipe fitter, has received a contract for all the piping equipment at the new steel plant now being built by the Indiana Steel Company at Gary, Ind., consisting of steam, exhaust, hydraulic, high and low pressure water, compressed air, gas and gas exhaust for 16 blast furnaces, 64 hot blast stoves, 48 gas washers, 84 open hearth furnaces, 64 boilers, 8 steam blowing engines, 32 gas blowing engines, 36 gas electric engines of a total horsepower of 500,000; 7 electric driven pumps of 200,000,000 gal. daily capacity, together with auxiliary pumps, air compressors, hoisting machinery, &c. The working steam pressure is placed at 175 lb.; working water pressure, high, 1000 lb.; low, 100 lb. Compressed air pressure, power purposes, all fitted with Best patent gate valves with adjustable wedge discs, is being installed with the above, from 36 in. down. Steam mains are fitted with rolled steel flanged shrunk, peened and lathe faced. Steam exhaust mains are fitted with cast iron flanges attached in the same manner. High pressure air lines are fitted with rolled steel flanges, Climax joint. High pressure hydraulic lines, beginning with 14 in., have cast steel header and steel valves, then extra heavy and double extra heavy pipe fitted with steel and semisteel flanges. Low pressure water lines, consisting of 42-in. cast steel header with 7-24 in. inlets branching off into 36 in. lock bar pipe and then into lap welded steel pipe from 30 in. down, are all fitted with rolled steel flanges for underground lines, cast steel screwed flanges above ground. Natural air intake for each gas engine is made up of 48-in. riveted pipe 90 ft. long, with four 14-in. branches to each engine; the gas supply to each engine is 36 in. in size, with two 24-in. branches into each. Gas exhaust from each engine consists of eight 32-in. branches into a 50-in. cast iron main; 18-in. water main, with two 5-in. branches to each gas engine for cooling purposes. The amount of the contracts covering this piping installation exceeds \$2,000,000. This is the largest contract for piping ever awarded by any concern for rolling mill, steel works or blast furnace equipment.

A large demand for Wagenhorst electric blue printing machines is reported by J. H. Wagenhorst & Co., Youngstown, Ohio, manufacturers of the Wagenhorst blue printer. Recent sales have been made by the company to the following: Eugene Dietzen Company, Toronto, Canada; H. W. Caldwell & Son Company, Chicago, Ill.; Betts Machine Company, Wilmington, Del.; Green Fuel Economizer Company, Matteawan, N. Y.; Atlantic Terra Cotta Company, Tottenville, N. Y.; Kansas City Structural Steel Company, Argentine, Kan.; Sawyer & Garstin, Colorado Springs, Colo.; H. Vogt Machine Company, Louisville, Ky.; Toledo Machine & Tool Company, Toledo, Ohio; S. G. Fetterman Engineering Company, Johnstown, Pa.; American Locomotive Works, Schenectady, N. Y.; H. L. Sprague, Springfield, Mass.; R. M. Jones Company, Muskogee, I. T.; Ajax Forge Company, Chicago, Ill.

The Thomas Auto Bl Company, Buffalo, N. Y., manufacturer of motor cycles, will build and equip a new factory on Niagara street, near Forest avenue.

The Ruud Mfg. Company, Pittsburgh, has bought the property of the Balr & Gazzam Machine Company, at Twenty-ninth and Smallman streets, Pittsburgh, for \$122,500. The ground is 120 ft. square and is improved with a modern four-story brick and steel building, erected for manufacturing purposes. The purchasers intend to remodel the building and adapt it to the manufacturing of its line of automatic hot water heaters. It will be some little time before the building and machinery will be ready for the use of the company, but it intends to concentrate its manufacturing departments and will carry stocks and have its offices in the new building. The present building, on Second avenue, Pittsburgh, will be offered for sale. The new plant when in operation will about double the present output and will give the company a combined annual capacity for manufacturing about 20,000 instantaneous automatic water heaters, multi-coil storage systems and multi-copper coil hot water house heaters. The company will have the largest plant in the country devoted to hot water heating apparatus. The Ruud Mfg. Company has recently opened another foreign office at Honolulu, T. H., with McFarland & Co. as agents.

The Iron and Metal Trades

The danger of a severe collapse in security values, which would have followed forced sales of a part of the pooled Tennessee stock pledged for loans has brought about the transfer of the control of that company to the United States Steel Corporation. The latter for the first time enters the Southern field and acquires the largest single interest, which is just rounding out extensive improvements at the furnaces, Steel works and rolling mills. The magnitude of these improvements is not generally appreciated, and the capacity of the works when completed has been usually underrated. The Steel Corporation is expected to carry the improvements under way to completion, and will then possess a plant capable of producing about 40,000 tons of open hearth Rails per month.

For the first time the Steel Corporation, by the acquisition of the Tennessee property, has a moderate interest in the Merchant Pig Iron market. Until now the corporation has not made or sold any Foundry Iron. Now it will be a seller to the extent of the steadily diminishing output of the Tennessee Company of Merchant grades. This during the current year has amounted to about 20,000 to 25,000 tons a month.

The sales policy of the present management of the Tennessee Company has been a conservative one since it has held control, so that there is not likely to be any revolutionary change in methods under the Steel Corporation. If anything, the entry of the latter into the Merchant Iron market may be influential toward increasing co-operation among sellers. In the Steel trade the transfer of control means increased concentration.

It is amazing how swiftly the Iron trade is adjusting itself to the conditions created by the happenings in the money markets. Plants are shutting down right and left, or are reducing output, as the result of a consensus of opinion among makers that such is the soundest course. There seems no disposition to keep running full by attempting to seize work at the sacrifice of prices, nor any desire, even where money conditions admit of it, to pile up stocks.

A large number of furnaces have shut down, or are about to do so, Coke ovens and Steel plants have been stopped partially or wholly, and rolling mills are reducing output.

Coupled with this movement there are appearing in increasing number notices of reductions in wages, ranging from 5 to 10 per cent., and it seems probable that this action will become quite general.

During the week there have been a number of conferences among makers in different lines, looking toward harmony of action in meeting the sudden contingencies which have arisen. It is not a question of reviving in form or in methods some of the old pools or of directly regulating prices.

Little can be said about the markets, which have not been seriously tested, since new business has been almost wholly suspended until the financial situation had been cleared up. There is little or no effort to force crude Iron or its products upon the market. On the whole the Iron trade is in excellent shape. It has been working toward an expected relaxation ever since spring, and it is only the suddenness of developments in the money markets which has been somewhat disconcerting. There have been very few commitments, outside of Coke and Ore, beyond the current year, and there is therefore no dangerous load anywhere suspended above the markets. The general decision to contract operations promptly removes the danger that stocks may pile up in the near future.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

Nov. 6, Oct. 30, Oct. 2, Nov. 7,
1907. 1907. 1907. 1906.

PIG IRON, Per Gross Ton:

Foundry No. 2, Standard, Philadelphia	\$19.00	\$19.50	\$20.00	\$22.75
Foundry No. 2, Southern, Cincinnati	20.25	20.25	21.25	23.00
Foundry No. 2, Local, Chicago	21.50	21.50	22.50	24.50
Bessemer, Pittsburgh	20.90	22.90	22.90	22.85
Gray Forge Pittsburgh	19.90	20.40	20.40	22.85
Lake Superior Charcoal, Chicago	25.50	26.00	26.50	23.50

BILLETS, &c., Per Gross Ton:

Bessemer Billets, Pittsburgh	28.00	28.00	28.50	28.50
Forging Billets Pittsburgh	30.00	31.00	32.00	36.00
Open Hearth Billets, Phila.	30.00	30.00	31.00	34.00
Wire Rods, Pittsburgh	34.00	35.00	36.00	35.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00

OLD MATERIAL, Per Gross Ton:

Steel Rails, Melting, Chicago	16.00	16.00	17.00	20.00
Steel Rails, Melting, Phila.	13.50	13.50	16.50	18.75
Iron Rails, Chicago	19.50	19.50	20.25	28.00
Iron Rails, Philadelphia	19.00	20.50	20.50	25.50
Car Wheels, Chicago	24.50	24.50	24.00	21.50
Car Wheels, Philadelphia	19.00	20.50	23.00	21.50
Heavy Steel Scrap, Pittsburgh	15.50	16.75	17.50	16.75
Heavy Steel Scrap, Chicago	14.00	14.00	15.00	17.50
Heavy Steel Scrap, Philadelphia	13.50	13.50	16.25	18.25

FINISHED IRON AND STEEL,

Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined Iron Bars, Philadelphia	1.75	1.75	1.75	1.83½
Common Iron Bars, Chicago	1.78	1.78	1.78	1.71½
Common Iron Bars, Pittsburgh	1.70	1.70	1.70	1.80
Steel Bars, Tidewater, New York	1.76	1.76	1.81	1.64½
Steel Bars, Pittsburgh	1.60	1.60	1.60	1.50
Tank Plates, Tidewater, New York	1.86	1.86	1.86	1.74½
Tank Plates, Pittsburgh	1.70	1.70	1.70	1.60
Beams, Tidewater, New York	1.86	1.86	1.86	1.84½
Beams, Pittsburgh	1.70	1.70	1.70	1.70
Angles, Tidewater, New York	1.86	1.86	1.86	1.84½
Angles, Pittsburgh	1.70	1.70	1.70	1.70
Skelp, Grooved Steel, Pittsburgh	1.70	1.85	1.85	1.57½
Skelp, Sheared Steel, Pittsburgh	1.80	1.95	1.95	1.60

SHEETS, NAILS AND WIRE,

Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, No. 27, Pittsburgh	2.50	2.50	2.50	2.50
Wire Nails, Pittsburgh	2.05	2.05	2.05	1.85
Cut Nails, Pittsburgh	2.05	2.05	2.10	1.90
Barb Wire, Galv., Pittsburgh	2.50	2.50	2.50	2.30

METALS, Per Pound:

	Cents.	Cents.	Cents.	Cents.
Lake Copper, New York	14.50	14.25	15.00	22.50
Electrolytic Copper, New York	14.37½	14.00	14.75	22.50
Spelter, New York	5.50	5.40	5.40	6.30
Spelter, St. Louis	5.35	5.30	5.20	6.20
Lead, New York	4.60	4.60	4.68	5.90
Lead, St. Louis	4.40	4.50	4.52	5.90
Tin, New York	30.60	32.00	34.70	42.50
Antimony, Hallett, New York	10.50	11.00	11.00	25.00
Nickel, New York	45.00	45.00	45.00	45.00
Tin Plate, 100 lb., New York	\$4.09	\$4.09	\$4.09	\$4.09

Chicago.

FISHER BUILDING, November 6, 1907.—(By Telegraph.)

Business still feels the retarding effect of money scarcity with its attendant results. Operations of every kind are restricted for lack of funds, especially where large sums are required. For the present, therefore, only current requirements representing actual needs are included in material purchases. Under these conditions it is not surprising that last week's market developed no transactions involving notable tonnage. While finished materials, as a whole, show no definite price recessions, soft spots have appeared in some lines that indicate a trend toward lower levels. Black Sheets and Bar Iron are being shaded to some extent, and Billets are none too firm. From the way building plans keep coming out, it would seem that lack of money is all that prevents the placing of large contracts for Structural Shapes. For the present, however, nothing more than figuring is being done. The effect of declining prices in Pig Iron is seen in a further reduction of \$1 a ton on Cast Iron Pipe. An even lower basis will probably have been reached before much of a buying movement develops. The demand for Pig Iron has been brought almost to a standstill, and for this reason it is difficult to get at the true level of the market. It is agreed that sellers can be found who would not let present price schedules stand in the way of desirable tonnage, if any such were offered. Notwithstanding the better strength shown in Copper, buyers are not taking hold vigorously. Because of the extreme depletion of stocks, there has been, it is true, some buying at the low prices, but requirements are not being covered far ahead.

Pig Iron.—The market is weak and extremely unsettled. Under the circumstances it is impossible to quote other than nominal prices. These are indicated by the few small lots sold for immediate delivery and are hardly a criterion of what might be done on round tonnage business, but there is none of that sort being offered. In a few instances low prices have been established in connection with settlement sales, where incompleting tonnage on high-priced contracts has been included at figures below current quotations. The appearance of resale iron also has a tendency to confuse the situation, as offers of this character are naturally subject to more or less scaling. Several sales of car lots and up to 100 tons of No. 2 Foundry are reported at \$17, Birmingham, and others of like character for Northern No. 2 at \$21.50. In one instance a sale of approximately 100 tons of Malleable Bessemer was made at \$20, Chicago, with a small lot of No. 2 Foundry reported at the same price. How soon this may become the established price it is impossible to say, but the trend is strongly in that direction. Rumors are rife of prices as low as \$16, Birmingham, being offered, but, except in the instance noted, they are unconfirmed. It is not likely that any large amounts of tonnage will be allowed to accumulate in furnace yards, as it will doubtless be the policy of operators to blow out stacks when their product ceases to be absorbed. Until the acute stage of the present monetary stringency has passed, no buying of consequence is looked for. There is absolutely no inquiry for 1908 tonnage. The following prices are for November and December delivery, f.o.b. Chicago:

Lake Superior Charcoal.....	\$25.50 to \$26.00
Northern Coke Foundry, No. 1.....	22.00 to 22.50
Northern Coke Foundry, No. 2.....	21.50 to 22.00
Northern Coke Foundry, No. 3.....	21.00 to 21.50
Northern Scotch, No. 1.....	22.50 to 23.00
Ohio Strong Softeners, No. 1.....	22.50 to 23.00
Ohio Strong Softeners, No. 2.....	22.00 to 22.50
Southern Coke, No. 1.....	21.85 to 22.35
Southern Coke, No. 2.....	21.35 to 21.85
Southern Coke, No. 3.....	20.85 to 21.35
Southern Coke, No. 4.....	20.35 to 20.85
Southern Coke, No. 1 Soft.....	21.85 to 22.35
Southern Coke, No. 2 Soft.....	21.35 to 21.85
Southern Gray Forge.....	19.35 to 19.85
Southern Mottled.....	18.35 to 18.85
Malleable Bessemer.....	21.50 to 22.00
Standard Bessemer.....	23.90 to 24.40
Jackson Co. and Kentucky Silvery, 6 %	30.40 to 30.90
Jackson Co. and Kentucky Silvery, 8 %	32.40 to 32.90
Jackson Co. and Kentucky Silvery, 10 %	34.40 to 34.90

(By Mail.)

Billets and Rods.—An inquiry for 1500 tons of Axle Billets appeared in the market last week, but as far as known has not yet been placed. Two or three lots of Forging Billets, ranging from a car lot to 100 tons, were sold on a price basis close to \$34, Chicago. Local producers have very little tonnage outside of their mill and contract requirements to offer in the open market. Outside competition is active and it is likely that ruling prices would be shaded somewhat on offers of round tonnage. We quote Forging Billets at \$34 to \$35, Chicago. Influenced by the heavy demand for Wire, Wire Rods continue to hold firm and are quoted at \$35 to \$36, Pittsburgh.

Rails and Track Supplies.—The only semblance of activity in Rails during the week was an inquiry for 8000 tons of Standard Section Rails for this year's delivery. This transaction, however, is contingent upon financing arrangements, which are not complete, and under the circumstances there is more or less doubt of its present consummation. Specifications against contracts for Spikes and Track Supplies furnish a fair amount of business, but not much new tonnage is being booked. We quote as follows: Angle Bars, accompanying Rail orders, 1907 delivery, 1.65c.; car lots, 1.75c. to 1.85c.; Spikes, 2c. to 2.10c., according to delivery; Track Bolts, 2.50c. to 2.60c., base, Square Nuts, and 2.65c. to 2.75c., base, Hexagon Nuts. The store prices on Track Supplies range from 0.15c. to 0.20c. above mill prices. Light Rails, 25 to 45 lb. sections, \$32; 20-lb., \$33; 16-lb., \$34; 12-lb., \$35, f.o.b. mill. Standard Sections, \$28, f.o.b. mill, full freight to destination.

Structural Material.—The week has developed no contracts involving tonnage of notable size, though it is evident that if the normal supply of funds was available a large amount of construction work would immediately be placed. Indicative of the present situation it is stated that the American Bridge Company has completed bids on 15,000 tons of Western Structural work, the letting of which seems to be only waiting easier money markets. That many still view the situation hopefully is apparent from new plans being offered for figures, 7700 tons having come in for estimates during the week. Most of this prospective business is from points west of Chicago, and includes 27000 tons, on which figures are asked by the Great Western Power Company, Oroville, Calif. A fairly good volume of business is coming out in small jobs, which require no outside funds. Prices from store are quoted without change, at 2.05c. to 2.10c., and mill prices at Chicago are as follows: Beams and Channels, 3 to 15 in., inclusive, 1.88c.; Angles, 3 to 6 in., 1/4-in. and heavier, 1.88c.; larger than 6 in. on one or both legs, 1.98c.; Beams, larger than 15 in., 1.98c.;

Zees, 3 in. and over, 1.88c.; Tees, 3 in. and over, 1.93c., in addition to the usual extras.

Plates.—New business is strictly confined to immediate wants, and these include no large orders. Specifications against contracts are only fair. Movement in this, as in other lines, has undoubtedly been affected by the present financial situation, and its resultant unsettlement. We quote for future delivery as follows: Tank Plates, 1/4-in. and heavier, wider than 6 1/4 and up to 100 in. wide, inclusive, car lots, Chicago, 1.88c. to 2.08c.; 3-16 in., 1.98c. to 2.18c.; Nos. 7 and 8 gauge, 2.03c. to 2.23c.; No. 9, 2.13c. to 2.33c.; Flange quality, in widths up to 100 in., 1.98c. to 2.08c., base, for 1/4-in. and heavier, with the same advance for lighter weights; Sketch Plates, Tank quality, 1.98c. to 2.18c.; Flange quality, 2.08c. Store prices on Plates are as follows: Tank Plates, 1/4-in. and heavier, up to 72 in. wide, 2.20c. to 2.30c.; from 72 to 96 in. wide, 2.30c. to 2.40c.; 3-16 in. up to 60 in. wide, 2.30c. to 2.40c.; 72 in. wide, 2.50c. to 2.65c.; No. 8, up to 60 in. wide, 2.35c. to 2.45c., Flange and Head quality, 0.25c. extra.

Sheets.—Some new orders are coming in, but they are mainly for the filling in of stocks and current shop requirements. Though specifications against contracts already booked are not crowding forward as they did a while back, yet they continue to be furnished in fairly good volume. While quotations are unchanged, it is noted that prices are being shaded from \$1 to \$2 a ton by independent mills. We quote mill shipments as follows, Chicago: Blue Annealed, No. 10, 2.03c.; No. 12, 2.08c.; No. 14, 2.13c.; No. 16, 2.23c.; Box Annealed, Nos. 17 to 21, 2.53c.; Nos. 22 to 24, 2.58c.; Nos. 25 to 26, 2.63c.; No. 27, 2.68c.; No. 28, 2.78c.; No. 29, 2.88c.; No. 30, 2.98c.; Galvanized Sheets, Nos. 10 to 14, 2.83c.; Nos. 15 and 16, 3.03c.; Nos. 17 to 21, 3.18c.; Nos. 22 to 24, 3.33c.; Nos. 25 and 26, 3.53c.; No. 27, 3.73c.; No. 28, 3.93c.; No. 30, 4.43c. Sheets from store: Blue Annealed, No. 10, 2.30c.; No. 12, 2.35c.; No. 14, 2.40c.; No. 16, 2.50c.; Box Annealed, Nos. 18 to 21, 2.70c.; Nos. 22 to 24, 2.75c.; No. 26, 2.80c.; No. 27, 2.85c.; No. 28, 2.95c.; No. 30, 3.35c.; Galvanized from store: Nos. 10 to 16, 3.20c.; Nos. 18 to 20, 3.35c.; Nos. 22 to 24, 3.50c.; No. 26, 3.70c.; No. 27, 3.90c.; No. 28, 4.10c.; No. 30, 4.60c. to 4.65c.

Bars.—Specifications are furnishing the principal tonnage now coming to the mills, which is fair in volume. New business, both in Steel and Iron Bars, is light. No price concessions on the former are heard of, and while Iron Bars are reasonably firm, a shade from the quoted price is occasionally offered. Quotations, Chicago, are as follows: Steel Bars, 1.78c., with half extras; Iron Bars, 1.78c.; Hoops, 2.18c., extras as per Hoop card; Bands, 1.78c., as per Bar card, half extras; Soft Steel Angles and Shapes, 1.88c., half extras. Store prices are as follows: Bar Iron, 2.10c. to 2.25c.; Steel Bars, 2c. to 2.10c.; Steel Bands, 2c., as per Bar card, half extras; Soft Steel Hoops, 2.35c. to 2.45c., full extras.

Merchant Pipe.—The demand for Pipe holds firmer perhaps than in most other mill products, but, being affected by the same conditions, is restricted pretty closely to lots required for stock assortment and actual present needs. A few fair sized orders are being placed for shipment to supply the early spring trade, but such transactions are not frequent just now. Prices are unchanged and firm. The following mill discounts are quoted: Black Pipe, 3/4 to 6 in., 71.2; 7 to 12 in., 68.2; Galvanized, 3/4 to 6 in., 61.2. These discounts are subject to 1 point on the base. From store in small lots Chicago jobbers quote 68 per cent. on Black Steel Pipe, 3/4 to 6 in. About 4 points advance above these prices is asked for Iron Pipe.

Boiler Tubes.—Preparation for the active overhauling of motive power equipment by the railroads in anticipation of heavy winter service has stimulated trade in Locomotive Tubes, which is fairly good. Competition for this business has given rise to some irregularity in prices. Merchant Tubes are firm, but the demand is only fair. Mill quotations for future delivery on the base sizes are as follows: 2 3/4 to 5 in., in carload lots, Steel Tubes, 63.2; Iron, 50.2; Seamless, 49.2; 2 1/2 in. and smaller, and lengths over 18 ft., and 2 1/2 in. and larger, and lengths over 22 ft., 10 per cent. extra. Store prices are as follows:

	Steel.	Iron.	Seamless
1 to 1 1/4 in.....	35	35	35
1 1/4 to 2 1/4 in.....	50	35	35
2 1/4 in.....	52 1/2	35	35
2 1/2 to 5 in.....	60	47 1/2	47 1/2
6 in. and larger.....	50	35	..

Merchant Steel.—New tonnage being placed is considerable. Specifications are being offered fairly well, especially from implement makers. Quotations are as follows: Plainished or Smooth Finished Tire Steel, 1.98c.; Iron Finish up to 1 1/2 x 1/2 in., 1.93c.; Iron Finish, 1 1/2 x 1/2 in. and larger, 1.78c., base; Channels for solid Rubber Tires, 3/4 to 1 in., 2.28c., and 1 1/4 in. and larger, 2.18c.; Smooth Finished Machinery Steel, 2.18c.; Flat Sleigh Shoe, 1.93c.; Concave and Convex Sleigh Shoe, 2.08c.; Cutter Shoe, 2.46 1/2c.; Toe Calk Steel, 2.33c.; Railroad Spring, 1.98c.; Crucible Tool Steel, 7 1/4c. to 8c., and still higher prices are asked on

special grades. Shafting, 54 per cent. off in car lots; 48 per cent., less than car lots, base territory delivery.

Cast Iron Pipe.—The opening of proposals for 2500 tons advertised for November 15 by Phoenix, Ariz., has been deferred to December 2; 3000 tons for Tucson has also been postponed 30 days, and will come up for letting on December 6. These are the only tonnages of importance now in sight. Prices are easier, and are revised on a basis of \$1 a ton decline. We quote, per net ton, Chicago, as follows: Water Pipe, 4-in., \$36; 6 to 12 in., \$35; 16-in. and up, \$34, with \$1 extra for Gas Pipe.

Coke.—Only a moderate amount of business is moving, and it is practically all for prompt shipment, no contract of any consequence being placed. We quote 72-hr. Connells-ville Coke at \$3.25 to \$3.40, at oven.

Old Material.—The market is extremely quiet. Transactions for the week have been so few and scattered that on several grades no sales have appeared to furnish a satisfactory price basis for quotations. Neither dealers nor mills are stocking material except at bargain prices, and but very little at that. Frogs, Switches and Guards are in poor demand and are off \$1 a ton from last week's quotation. Due to the continued weakness in Pig Iron, No. 1 Cast has declined 75c. a ton. But one railroad list, that of the Wisconsin Central, is offered this week, and it includes only 360 tons, 75 tons being Iron Rails and 20 tons Rerollers. Extreme conservatism and caution mark all transactions dealing with purchases for anything beyond present needs. We quote per gross ton, f.o.b. Chicago, as follows:

Old Iron Rails.....	\$19.50 to \$20.00
Old Steel Rails, rerolled.....	16.25 to 16.75
Old Steel Rails, less than 3 ft.....	16.00 to 17.00
Relaying Rails, standard sections, sub- ject to inspection.....	26.00 to 28.00
Old Car Wheels.....	24.50 to 25.00
Heavy Melting Steel Scrap.....	14.00 to 14.50
Frogs, Switches and Guards, cut apart.....	14.00 to 14.50
Mixed Steel.....	11.00 to 11.50

The following quotations are per net ton:

Iron Fish Plates.....	\$16.50 to \$17.00
Iron Car Axles.....	22.50 to 23.00
Steel Car Axles.....	19.50 to 20.00
No. 1 Railroad Wrought.....	13.75 to 14.25
No. 2 Railroad Wrought.....	13.25 to 13.75
Railway Springs.....	13.75 to 14.25
Locomotive Tires, smooth.....	17.50 to 18.00
No. 1 Dealers' Forge.....	11.00 to 11.50
Mixed Bushing.....	9.50 to 10.00
Iron Axle Turnings.....	9.50 to 10.00
Soft Steel Axle Turnings.....	9.50 to 10.00
Machine Shop Turnings.....	9.50 to 10.00
Cast Borings.....	8.25 to 8.75
Mixed Borings, &c.....	8.25 to 8.75
No. 1 Mill.....	8.75 to 9.25
No. 2 Mill.....	8.00 to 8.50
No. 1 Rollers, cut to Sheets and Rings.....	9.50 to 10.00
No. 1 Cast Scrap.....	15.25 to 15.75
Stove Plate and Light Cast Scrap.....	13.50 to 14.00
Railroad Malleable.....	14.00 to 14.50
Agricultural Malleable.....	13.75 to 14.25
Pipes and Flues.....	10.50 to 11.00

Metals.—Although market quotations reflect some price improvement in Copper, yet it is doubtful if the advances are fully realized in actual sales. The demand, though somewhat improved, is by no means brisk, buyers being as yet in doubt of the permanency of the late reaction toward a higher level. Undoubtedly, too, the stringency of the money situation has a strong bearing on the situation. We quote as follows: Casting Copper, 15 to 15½c.; Lake, 16½c., in car lots for prompt shipment; small lots, ¼c. to ¾c. higher; Pig Tin, car lots, 34½c.; small lots, 34¼c.; Lead, Desilverized, 5c. to 5.10c., for 50-ton lots; Corroding, 6c. to 6.10c., for 50-ton lots; in car lots, 2¼c. per 100 lb. higher; Spelter, 5.65c.; Cookson's Antimony, 13c., and other grades, 12c. to 12½c.; Sheet Zinc is \$7.50 list, f.o.b. La Salle, in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, 14c.; Heavy Copper, 14c.; Copper Bottoms, 12½c.; Copper Clips, 12½c.; Red Brass, 13½c.; Yellow Brass, 10½c.; Light Brass, 7¼c.; Lead Pipe, 5c.; Zinc, 4½c.; Pewter, No. 1, 23c.; Tin Foil, 25c.; Block Tin Pipe, 30c.

Philadelphia.

PHILADELPHIA, PA., November 5, 1907.

The market for both raw and finished materials in this territory continues extremely dull, and the amount of actual business done has been small in almost every branch of the trade. The outlook is by no means cheerful, and it is now pretty generally believed that the volume of business which will come out during the balance of the year will be considerably less than was anticipated a few weeks ago. The financial situation still commands a large share of the attention of the trade in general, and while there has been some improvement in the situation on the whole, the atmosphere is by no means clear, and until these matters have adjusted themselves and full confidence restored in the business situation, buying will continue to be done on a very conservative basis. In raw materials there has been scarcely enough business done to make a market. Tonnages sold have in every case been small, while in some grades of Iron no transactions whatever are reported. Rolling mills are being

operated on reduced time, in some cases not running to much over half their capacities. In some instances, production is being materially reduced, while in others departments which have caught up with old orders have temporarily suspended work. Reductions in wages amounting to from 5 to 10 per cent., largely on a sliding scale basis, have also been announced at several of the Schuylkill Valley mills. Deliveries of Pig Iron and Scrap on contract have been held up quite sharply in a number of cases, and it begins to look as if those who had not fully covered for their needs for the remainder of the year would have sufficient accumulation to make it unnecessary to purchase much for December delivery. There is absolutely no interest taken in buying for next year's deliveries. Consumers are placing business for their immediate needs only, and prefer to wait until matters assume more definite shape before making purchases for future delivery.

Pig Iron.—Buying has been extremely light in every department. There seems to be little disposition on the part of buyers to do anything beyond a hand-to-mouth business, and sales have consequently been small. The Foundry grades alone have shown any activity, and even in these grades orders are confined to small lots, mostly carloads. The absence of business makes it difficult to give accurate quotations, but the feeling on the whole is not strong, and Iron can be bought at prices materially lower than those quoted last week. Buyers have been feeling the market to some extent during the past week and bids at from 50c. to \$1 under ruling quotations have been made, but sellers are disposed to hold out as long as they can, and such offers are receiving little consideration, as it is thought that buyers would not take hold in any large tonnage even if the lower bids were met. Furnacemen are, in the majority of cases, fairly well sold up for the balance of the year and will, no doubt, blow out some of their furnaces rather than sell Iron at figures which will show a loss or pile Iron on their yards at the present cost level. Producers are probably in better shape to adjust themselves to changed conditions than ever before, as stocks on the furnace banks are, as a rule, very low, and particularly bare of off grades. A number of stacks have already been blown out in this territory, and more are to follow, as fast as they catch up with orders on hand, which were largely booked at high prices. Should this reduction in production not be sufficient to meet the reduced consumption there will likely be a further curtailment, which will be maintained until either prices get on a higher level or cost of production is adjusted to the current selling prices of Pig Iron. An entire absence of any interest in Pig Iron for next year's delivery is to be noted. Makers are inclined to look forward to a better level of prices and make no effort whatever to press sales, while consumers, in view of the reduced demand for their product, hardly know what their needs will be, as considerable Iron which they expected to consume this year will, no doubt, be carried over into next year, and, therefore, unless the price be a very attractive one, no consideration whatever is given to purchases for forward delivery. Sales of No. 2 X Foundry have been made during the week at from \$19 to \$19.50, delivered. No large lots, however, have appeared and it is difficult to say what a round lot of several thousand tons could be done at, but it has been intimated that these prices could be slightly bettered if a good consumer was in the market. Basic Iron has been inactive, no sales having been reported, although it is thought that there would be no difficulty in placing a round order at \$18, delivered. Forge Irons have been dull. There has been some inquiry, but buyers and sellers do not seem to be able to get together on prices. Some small lots of 100 to 200 tons have been done at close to \$17.25, delivered. There has been no sales of Low Phosphorus, although it is understood that \$26 to \$26.25 could be done if a good tonnage came out. Some sales of small lots of misfit Low Phosphorus have been made. Prices, however, varied as to analysis, some being sold at close to \$24, delivered. While quotations are more or less nominal, prices for delivery in buyers' yards during the remainder of the year, eastern Pennsylvania and adjoining territory, range about as follows:

No. 2 X Foundry.....	\$19.00 to \$19.50
Gray Forge.....	17.00 to 17.75
Basic.....	18.00 to 18.50
Low Phosphorus.....	26.00 to 26.50

Ferromanganese.—There has been but little demand for Ferro, and sales have been confined to occasional carload lots. Prices are not very strong, and about \$53 can be done for November or December delivery. Buyers, however, refuse to take hold for next year's deliveries, and sellers are not pressing the market.

Steel.—New business is scarce, and mills are hardly running at half their capacity. Specifications on old contracts are not coming out, and new orders are small and cover immediate needs of customers only. Prices are nominally quoted at \$30 to \$31 for Ordinary Steel and \$33 to \$35 for Forging Steel, but concessions could be had for good sized orders.

Plates.—Some good inquiries are on the market, but do not close very rapidly. A sale of a 1000-ton lot for car work

has been reported, but the bulk of the business is made up of small lots of a miscellaneous character, and mills are only fairly well occupied. Prices are pretty well maintained and are quoted as follows:

	Carload.	Part
	Cents.	Carload.
Tank, Bridge and Boat Steel.....	1.85	1.90
Flange or Boiler Steel.....	1.95	2.05
Marine.....	2.20	2.25
Locomotive Firebox Steel.....	2.40	2.45
The above are base prices for 1/4-in. and heavier. The following extras apply:		
3-16-in. thick.....	\$0.10	
Nos. 7 and 8, B. W. G.....	.15	
No. 9, B. W. G.....	.25	
Plates over 100 to 110 in.....	.05	
Plates over 110 to 115 in.....	.10	
Plates over 115 to 120 in.....	.15	
Plates over 120 to 125 in.....	.25	
Plates over 125 to 130 in.....	.50	
Plates over 130 in.....	1.00	

Structural Material.—A fair volume of business is being taken, confined mostly to small lots, and mills continue to be pretty fully occupied. Prompt shipment can be had, as a rule, and prices are being well maintained at 1.85c. to 2c., according to specification.

Bars.—There is practically no change in the demand for Bars. Specifications on old orders are not coming out promptly, and new business is light, so that mills are not busy. Prices are being maintained at 1.75c. to 1.80c. for Best Refined Iron, as sellers do not believe that business could be attracted under present conditions at lower figures. Steel Bars could be had at about the same price, but delivery would be hardly as prompt.

Sheets.—New business is light and is confined to small tonnages for prompt shipment. There is no disposition to buy for forward delivery, and mills are only running at about half their capacity. Prices for mill shipments are as follows, a tenth extra being quoted for small lots: Nos. 18 to 20, 2.80c.; Nos. 22 to 24, 2.90c.; Nos. 25 to 26, 3c.; No. 27, 3.10c., and No. 28, 3.20c.

Old Material.—There is practically no demand for Old Material, and what business there is is confined to small tonnages. Prices have receded still further, and under existing conditions are extremely difficult to quote. While No. 1 Steel Scrap has been sold at \$14 delivered, the mills are practically out of the market, and sales between dealers have been made as low as \$13.50, delivered, with offers at \$13, delivered. Transactions are for prompt shipment only, and bids and offers for delivery in buyers' yards are nominally quoted about as follows:

No. 1 Steel Scrap and Crops.....	\$13.50 to \$14.00
Low Phosphorus.....	18.50 to 19.00
Old Steel Axles.....	20.00 to 20.50
Old Iron Axles.....	25.00 to 26.00
Old Iron Rails.....	19.00 to 19.50
Old Car Wheels.....	19.00 to 20.00
Choice No. 1 R. R. Wrought.....	16.25 to 17.00
Machinery Cast.....	17.00 to 17.50
Wrought Iron Pipe.....	13.50 to 14.00
No. 1 Forge Fire Scrap.....	12.50 to 13.00
No. 2 Light Iron.....	8.50 to 9.00
Wrought Turnings.....	11.00 to 11.50
Stove Plate.....	13.00 to 13.50
Cast Borings.....	8.50 to 9.00
Grate Bars.....	13.50 to 14.00

Pittsburgh.

PARK BUILDING, November 6, 1907.—(By Telegraph.)

Pig Iron.—The market continues lifeless as regards sales and prices on all grades are lower. We quote Bessemer Iron nominally at \$20, Valley furnace, or \$20.90, Pittsburgh, and if any tonnage was wanted it is very probable \$19 could be done. There is no demand whatever for Basic, and while furnaces quote about \$19, Valley furnace, \$18.50, at furnace, could be done on a firm offer. Very small lots of Foundry Iron are being sold for prompt delivery, and we quote Northern No. 2 Foundry for prompt shipment at \$19 to \$19.50, Valley furnace, but note that several furnaces are asking higher prices. Eastern Forge Irons are being offered for delivery in the Pittsburgh District at \$19.35 equal to \$17.25, at Eastern furnace. We quote Northern Forge at \$19, Valley furnace, or \$19.90, Pittsburgh, but if any was wanted this price could be readily shaded 50c. a ton. The very light demand for Pig Iron at the present time can readily be supplied by consumers who are offering Iron for resale at practically any price they can get for it and considerably below the prices quoted by the furnaces.

Steel.—Press reports that the old Billet pool is to be revived are untrue. An informal conference of some of the leading Bessemer and Open Hearth Steel manufacturers was held in the University Club, Pittsburgh, on Wednesday, October 30, at which the present chaotic condition of the Steel market was thoroughly discussed. It was the consensus of opinion that any radical reduction in Steel prices would not help the situation, but would make it worse, and hence it was the unanimous opinion that the only remedy

for the market was to cut down output, which will be done. The Columbus and Bellaire works of the Carnegie Steel Company are now down, and a large Eastern Open Hearth plant has closed. Other Steel works will likely shut down in the near future unless the demand soon improves. Bessemer and Open Hearth Billets are nominally \$28, but there is no buying. Forging Billets are about \$30, Pittsburgh, and Sheet and Tin Bars are still held at \$31, maker's mill.

(By Mail.)

Conditions in the Steel trade are without precedent, as it seems that business has been practically suspended. Shipments of Pig Iron, Steel and all kinds of Finished Material are being held up. It is not a question of price, but simply that no one wants to buy anything he can possibly get along without. In this condition the leading Steel and furnace interests have taken the situation vigorously in hand, and are shutting down blast furnaces, Steel works and Coke ovens at a rate that will soon cut the output to half or less. A month ago the United States Steel Corporation had only three or four furnaces idle, while to-day it has 24 stacks out of blast. A list of the idle furnaces of the Steel Corporation includes Bellaire, 2; Edgar Thomson, 4; Lucy, 1; South Sharon, 1; Columbus, 2; Ohio Works, 1; Steubenville, 1; Carrie, 1; Donora, 1; Niles, 1; Cleveland, 2; Illinois Steel Company, 2; Lorain, 1; Mingo, 1; Zanesville, 1; Clairton, 1; Duquesne, 1. The Steel Corporation has also shut down its Bessemer Steel works at Columbus and Bellaire, and may possibly close Mingo Junction and New Castle in the near future. A recent meeting of the Valley furnace interests was held in Cleveland, at which the Pig Iron situation was gone over carefully, and all the Valley furnace operators decided that as soon as orders for Pig Iron were cleaned up the furnaces would shut down. A general blowing out of stacks in the two valleys may be expected at any time, the initiative having been taken by the Shenango Furnace Company, which has blown out two stacks. The Coke producers in both the Connellsville and outside regions have made a similar agreement, and will blow out ovens as fast as it becomes apparent their output is not needed. By cutting down output the leading interests believe the situation will be helped by the fact that stocks of Pig Iron, Steel and Coke will be kept at a minimum. The next place to feel the shutdown movement will be the Ore regions, and it would not be surprising if there is a general suspension of work in the Mesaba region in the near future. Concerns that had extensions to plants and other improvements under way have suspended all work possible, and the list of idle men is increasing at a rapid rate. It is hard to imagine a more complete change in the situation than that which has come in the last two or three weeks. A month ago there was an actual scarcity of labor, and to-day there are thousands of idle men, with every promise of their number being increased. Financial conditions are no worse than a week ago, nor are they any better. Large interests like the Carnegie Steel Company, American Sheet & Tin Plate Company, and others are adopting a check system for paying their employees, and last week a large number of them paid their men on the basis of 80 per cent. in checks and 20 per cent. in currency. Local banks are not paying out a dollar they can possibly avoid, and are urging customers to use checks even for very small amounts. In regard to prices, the only thing that can be said is that there is no buying on which to quote market values. We have carried for several weeks Bessemer Iron at the nominal price of \$22, but this week we change this to \$20, at Valley furnace, as there would be no trouble in buying Bessemer Iron at that price or even less, but nobody wants Bessemer Iron at any price. Several leading consumers are overbought, and are taking in Iron for which they really have no use. Basic Iron is nominally \$19, at Valley furnace, but probably less could be done on a firm offer. The nominal price of Northern No. 2 Iron for forward delivery is about \$19, at furnace, and the same figure is quoted for Northern Forge. However, there is nothing doing, and these prices are simply a guess at what might be done if any business was offering. The taking over of the controlling interest in the Tennessee Coal & Iron Company by the United States Steel Corporation is regarded here as a master stroke on the part of the latter, and is bound to strengthen its position in every way. Summed up the situation in the Steel trade is one of chaos, but it is hoped that it will only be a short time until the dark clouds that now surround it have passed away. Just as soon as confidence commences to return business conditions will very quickly improve.

Ferromanganese.—In line with other forms of raw materials, there is really no standard price that can be quoted on Ferro. Some is being offered for resale at low prices, and it is probable that foreign 80 per cent. Ferro could be bought to-day at \$53 to \$54, Pittsburgh, but only an occasional small lot is being taken by some consumer who must have it.

Muck Bar.—There is practically no demand, and prices are merely nominal. Best grades of Muck Bar made from all Pig Iron could be bought to-day at \$34, Pittsburgh, and probably less.

Skelp.—Consumers are specifying fairly well against contracts, but there is no new demand. Prices are easier, and we quote Grooved Steel Skelp at 1.70c. to 1.75c.; Sheared Steel Skelp, 1.80c.; Grooved Iron Skelp, 1.90c., and Sheared, 2c. to 2.10c., depending on sizes and widths. These prices are f.o.b. maker's mill, and could probably be shaded if any new business was offering.

Rods.—New demand for Rods seems to take up the available supply, which for some months has been small. We quote Bessemer Rods nominally at \$34, and Open Hearth about \$35, Pittsburgh. In sympathy with weakness in other lines, it is probable that Rods could be bought on a firm offer at less than the above prices.

Plates.—Little new business is coming to the mills, and a good deal of tonnage on contracts has been held up. New orders for Plates are only for small lots for actual needs. The Steel car interests are still taking out a heavy tonnage in Plates. A good deal of business is pending, but it will not be placed until the present unsatisfactory condition of the money market has been cleared up. There is some shading being done in prices of Plates in certain sections, but so far this has not exceeded about \$2 a ton. Regular prices are as follows: Tank Plates, ¼-in. thick, 6¼ in. up to 100 in. wide, 1.70c. base, at mills, Pittsburgh. Extras over this price are as follows:

	Extra per 100 lb.
Gauges lighter than ¼-in. to and including 3-16-in.	
Plates on thin edges.....	\$0.10
Gauges Nos. 7 and 8.....	.15
Gauge No. 9.....	.25
Plates over 100 to 110 in.....	.05
Plates over 110 to 115 in.....	.10
Plates over 115 to 120 in.....	.15
Plates over 120 to 125 in.....	.25
Plates over 125 to 130 in.....	.50
Plates over 130 in.....	1.00
All sketches (excepting straight taper Plates varying not more than 4 in. in width at ends, narrowest end being not less than 30 in.).....	.10
Complete Circles.....	.20
Boiler and Flange Steel Plates.....	.10
"A. B. M. A." and ordinary Firebox Steel Plates.....	.20
Still Bottom Steel.....	.30
Marine Steel.....	.40
Shell Grade of Steel is abandoned.	

TERMS.—Net cash 30 days. Pacific Coast base, 1.60c., f.o.b. Pittsburgh, with all rail tariff rate of freight to destination added, no reduction for rectangular shapes 14 in. wide down to 6 in. of Tank, Ship or Bridge quality.

Steel Rails.—There is nothing of interest to report. Practically no tonnage is being placed in Standard Sections, nor is there likely to be until the present money situation has righted itself enough to allow the railroads to get money at reasonable rates of interest to buy Rails and other material. The Carnegie Steel Company is operating its Edgar Thomson mill to only about one-half capacity. Should no large orders for Rails be received in the meantime it is probable that this mill will be shut down about the holidays in order to allow some important improvements and repairs to be made. There is a fair demand for Light Rails, on which prices are only fairly steady. We quote Light Rails as follows: 25 to 45 lb., \$30; 20-lb., \$31; 16-lb., \$32; 12-lb., \$34; 10-lb., \$36, and 8-lb., \$40. We quote Standard Sections at \$28, at mill, and Angle Splice Bars at 1.65c., at mills.

Structural Material.—A great deal of work has been held up on account of the money stringency. In spite of the adverse conditions the American Bridge Company fabricated in October close to 55,000 tons, but orders entered in that month were smaller than in the previous month. Bids have gone in for a bridge across the Monongahela River between Webster and Donora, Pa., about 1500 tons, while the Youngstown Sheet & Tube Company has received bids for 800 to 1000 tons of Steel for new buildings. The mills have caught up on contracts and can now deliver material as fast as needed. We quote: Beams and Channels, up to 15 in., 1.70c.; over 15 in., 1.80c.; Angles, 3 x 2 x ¼ in. thick, up to 6 x 6 in., 1.70c.; 8 x 8 and 7 x 3½ in., 1.80c.; Zees, 3 in. and larger, 1.70c.; Tees, 3 in. and larger, 1.75c.; Bulb Angles and Deck Beams, 2c. Under the Steel Bar card Angles, Channels and Tees under 3 in. are 1.70c., base, for Bessemer and Open Hearth, subject to half extras on the Standard Steel Bar card.

Sheets.—Production has been cut down materially in the last two or three weeks, owing to the falling off in demand. Buyers are placing orders in small lots for actual needs, no contracts being given out. Specifications against old contracts are coming in fairly well, but a good deal of tonnage has been held up. Prices on Galvanized Sheets remain firm, but on Black Sheets are being shaded to the extent of about \$2 a ton. Usual prices are as follows: Blue Annealed Sheets, No. 10 gauge and heavier, 1.85c.; Nos. 11 and 12, 1.90c.; Nos. 13 and 14, 1.95c.; Nos. 15 and 16, 2.05c.; Box Annealed, Nos. 17 to 21, 2.35c.; Nos. 22 to 24, 2.40c.; Nos. 25 and 26, 2.45c.; No. 27, 2.50c.; No. 28, 2.60c.; No. 29, 2.75c.; No. 30, 2.85c. We quote Galvanized Sheets as follows: Nos. 10 and 11, 2.65c.; Nos. 12 and 14, 2.75c.; Nos. 15 and 16, 2.85c.; Nos. 17 to 21, 3c.; Nos. 22 and 24, 3.15c.; Nos. 25 and 26, 3.35c.; No. 27, 3.55c.; No. 28, 3.75c.; No. 29, 4c., and No. 30, 4.25c. We quote No. 2 gauge Painted Roofing Sheets at \$1.85 per square, and Galvanized Roofing Sheets, No. 28 gauge, \$3.25 per square, for

2-in. corrugations. These prices are for carload lots, jobbers charging the usual advances.

Tin Plate.—There is no improvement in the demand, and the Tin Plate output continues to be materially restricted. Some of the larger plants of the American Sheet & Tin Plate Company are down, while some of the independent makers are running to about half capacity. This is the usual dull season in the Tin Plate trade, but the present demand is much lighter than at this time last year. Manufacturers of Tin Plate realize that any reduction in prices would not better the situation. We quote \$3.90 for 100-lb. Cokes, 14 x 20, f.o.b. Pittsburgh, terms 30 days, less 2 per cent. off for cash in 10 days, on which price a rebate of 5c. a box is allowed for carload and larger lots.

Iron and Steel Bars.—New tonnage being placed with the mills is practically for small lots only to cover actual needs, there being no desire whatever on the part of consumers to contract ahead. Specifications against contracts are coming in only fairly well. The leading Steel Bar mills have contracts on their books covering an enormous tonnage, but in present conditions it is probable that a good deal of this will not be taken out. If the present attitude of the Steel Bar makers toward prices is maintained there will be no price reduction made for some time at least. It is recognized that any reduction in prices now would only have the effect of making the situation worse. New business in Iron Bars is also light, and there is some unevenness in prices. We continue to quote Steel Bars at 1.60c., base, Pittsburgh, and Iron Bars at 1.70c., Pittsburgh, for delivery in the Pittsburgh District, and 1.60c., Pittsburgh, for Western shipment. However, these prices on Iron Bars would likely be shaded if any large tonnage was offering.

Spelter.—Prices have again gone off and no business of moment is being placed. Prime grades of Western Spelter have been offered to consumers here in the last few days at 5.12½c., St. Louis, or 5.25c., Pittsburgh. On a firm offer this price would likely be shaded.

Spikes.—The demand for Railroad Spikes is very dull and the mills are actively seeking business. For the smaller sizes there is a fair demand, but it is lighter than for some time. We quote Railroad Spikes at \$1.90 to \$1.95, and smaller sizes at \$2.05 to \$2.10, per 100 lb., f.o.b. Pittsburgh.

Merchant Steel.—The mills are running nearly altogether on specifications against contracts, which are coming in only fairly well. The demand for Shafting is fairly active, and it is stated that prices are being maintained. We quote Cold Rolled Shafting at 54 per cent. off in large lots and 48 per cent. off in carload lots, delivered in base territory; Smooth Finished Machinery Steel, 1.85c. to 2c., depending on quality; Flat Sleigh Shoe, 1.65c. to 1.75c.; Cutter Shoe, 2.15c. to 2.20c.; Toe Calk Steel, 2.10c. to 2.15c.; Railroad Spring Steel, 1.75c. to 1.80c.; Crucible Tool Steel, 6c. to 8c. for ordinary grades, and 10c. and upward for special grades.

Merchant Pipe.—In October the output of Tubular goods in the various plants of the National Tube Company was 20 per cent. larger than in any previous month in its history. An informal meeting of the independent Pipe concerns was held in this city, at which the present situation in the Pipe trade was thoroughly discussed. It was the consensus of opinion among those present that any reduction in price of Pipe would not better the situation one iota, but, on the contrary, would make it worse. It was also the unanimous opinion that the only way to meet the present dull situation was to sustain prices if possible, but to cut down output, and this will be done. Already one or two Pipe mills have put out some furnaces and others will do so unless they get orders. An inquiry is in the market for 13 miles of 6-in. Line Pipe, but the order has not yet been placed. It is stated that prices on Steel Pipe are being firmly maintained, but on Iron Pipe are being more or less shaded. The net discount on ¾ to 6 in. Merchant Pipe is 74 and 5 per cent. off list. Discounts on Steel Pipe are as follows:

Merchant Pipe.

Jobbers, carloads.

Steel.

Black. Galv.

	Black.	Galv.
¼ to ¾ in.....	65	49
¾ in.....	67	53
1 in.....	67	57
1½ to 3 in.....	73	63
3 to 12 in.....	70	55
Extra strong, plain ends:		
¼ to ¾ in.....	58	46
¾ to 1 in.....	65	53
1½ to 3 in.....	61	49
Double extra strong, plain ends:		
½ to 8 in.....	54	43

To the large trade all above discounts are subject to 1 point on the base, and 5 per cent. on the net.

Discounts on Iron Pipe, which are shaded 2 points or more to the large trade, are as follows, f.o.b. Pittsburgh:

Standard Genuine Iron Pipe.

Black. Galv.

	Black.	Galv.
¾ to 6 in.....	67	57
¾ in.....	62	50
1 in.....	60	42
1½ and 1 in.....	58	42
7 to 12 in.....	62	47

Extra Heavy Iron Pipe, Plain Ends.

1/2, 3/4 and 1 in.	62	40
1 1/2 to 4 in.	59	47
4 1/2 to 8 in.	55	42

Boiler Tubes.—There is practically no buying of Railroad Tubes, on which prices are being more or less shaded, but there is a fair inquiry for Merchant Tubes, on which we are advised that prices are ruling fairly strong. Discounts on Merchant Tubes are as follows:

Boiler Tubes.

	Iron.	Steel.
1 to 1 1/2 in.	42	47
1 1/2 to 2 1/2 in.	42	59
2 1/2 in.	47	61
2 1/2 to 3 in.	52	65
3 to 13 in.	42	59
2 1/2 in. and smaller, over 18 ft. long, 10 per cent. net extra.		
2 1/2 in. and larger, over 22 ft. long, 10 per cent. net extra.		

Iron and Steel Scrap.—The Scrap market is pretty badly demoralized, and prices have gone off \$1 to \$1.50 a ton or more. A good deal of Scrap is pressing the market to find sale, while a pretty large tonnage is loaded on cars for which dealers are trying to find destination. None of the large consumers is taking in a pound of Scrap that can be done without, and the amount being sold is very light and in small lots. We have reduced prices from \$1 to \$1.50 a ton, and now quote as follows: Heavy Steel Scrap, for Sharon, Steubenville or Pittsburgh delivery, \$15.50; Bundled Sheet Scrap, \$13 to \$13.50; No. 1 Railroad Wrought Scrap, \$16; No. 2, \$15 to \$15.50; Re-rolling Rails, \$16.25 to \$16.50; No. 1 Cast Scrap, \$17 to \$17.50; Cast Iron Borings, \$11; Old Steel Rails, short pieces, for open hearth use, \$15.50; Low Phosphorus Melting Stock, \$19 to \$19.50; Steel Axles, \$21 to \$21.50; No. 1 Busheling Scrap, \$15; No. 2, \$11.75 to \$12; Old Car Wheels, \$22.50 to \$23; Standard Sheet Bar Crop Ends, \$18.50 to \$19; Grate Bars, \$15; Stove Plate, \$13.50, net ton. All above prices are per gross ton, f.o.b. Pittsburgh, unless otherwise noted.

Coke.—In view of the rapid shutdown of blast furnaces, to reduce the output of Pig Iron, it is evident that the demand for Furnace Coke will soon show a material falling off. To meet this condition a number of leading independent Coke producers held a conference recently and decided that the best plan to pursue would be to blow out ovens as fast as necessary to meet the falling off in demand, and thus keep stocks as low as possible. Several of the leading independent operators have already put out some ovens, and the H. C. Frick Coke Company has also blown out a number of ovens, and will put out more in the near future. Furnace Coke for prompt shipment is easier, and can readily be obtained at \$2.75 a ton or less. Connells-ville 72-hr. Foundry Coke for prompt shipment is offered at \$3 a ton, at oven. The Upper and Lower Connells-ville regions made last week 418,385 tons, a decrease in output over the previous week of nearly 10,000 tons.

Birmingham.

BIRMINGHAM, ALA., November 2, 1907.

Pig Iron.—The past week records no apparent change in the attitude of either producers or melters as to negotiation of contracts to cover future requirements. As a matter of fact there is no market at present, it being generally conceded by melters that by the time requirements for next year are urgent, conditions will have been readjusted and the market on a firm basis at reduced prices. Owing to the lack of new business it cannot be stated what reduction will be necessary to facilitate the successful operation of Southern furnaces during the coming year, but to judge by the recent reductions in prices of principal products it is highly probable that to restore normal consumption a \$15 basis would be most effective. The price of \$18.50 on a No. 2 Foundry basis is being asked by leading interests, but the absence of a firm offer makes it quite impossible to ascertain just what could be done on an attractive tonnage for delivery during the coming year. Sales for immediate requirements continue prevalent and in the aggregate quite an attractive tonnage has been sold. The rate of \$17 on a No. 2 Foundry basis, with differential of \$1 per ton for other grades, has been done with one of the smaller producers, but it is understood it is well sold up and has little except low grades to offer. Offerings of resale Iron are being made at a further decline. Gray Forge is reported offered at \$13, Birmingham, while Nos. 2 Soft and 3 Foundry are offered at \$16.50 and \$15.50, respectively. During the past week production has decreased materially. The Tennessee Coal, Iron & Railroad Company has blown out its Oxmoor Furnace, together with No. 4 at Bessemer, while No. 1 of the same plant has been banked. It is understood, however, that all three stacks were in need of repair and that advantage is being taken of the present inactivity of the market.

Cast Iron Pipe.—The principal feature of the market this week is the cancellation of a contract placed with a leading Pipe company for shipment to Cuba. It is understood that the entire tonnage has been placed with another Southern company, but the reason has not been made public.

So far as can be ascertained no new bids are being advertised, and with the exception of tonnage to be bid on for Tucson and Phoenix, Ariz., no business of consequence is in sight for delivery in the near future. No changes are noted in quotations, and prices of small lots of Water Pipe are as follows, per net ton, f.o.b. cars here: 4 to 6 in., \$34; 8 in. to 12 in., \$33; over 12 in. average, \$30, with \$1 per ton extra for Gas Pipe. On large municipal contracts these prices are probably shaded.

Old Material.—The market is exceptionally dull and no demand other than for immediate consumption is noted. Dealers continue to accumulate stocks, but are rather optimistic as to conditions. Advance in price of some grades is noted accordingly. Revised quotations are about as follows, per gross ton, f.o.b. cars here:

Old Iron Rails	\$22.00 to \$22.50
Old Iron Axles	18.50 to 19.00
Old Steel Axles	17.00 to 17.50
Old Car Wheels	20.50 to 21.00
No. 1 Railroad Wrought	17.50 to 18.00
No. 2 Railroad Wrought	13.00 to 13.50
No. 1 Country Wrought	14.50 to 15.00
No. 2 Country Wrought	12.00 to 12.50
Wrought Pipe and Flues	13.50 to 14.00
Railroad Malleable	14.00 to 14.50
No. 1 Steel	13.50 to 14.00
No. 1 Machinery Cast	14.25 to 14.75
Stove Plate and Light Cast	10.25 to 10.75
Cast Borings	7.75 to 8.25

Cleveland.

CLEVELAND, OHIO, November 5, 1907.

Iron Ore.—While a very heavy movement of Ore was expected for October, the figures exceeded expectations. They not only passed the 6,000,000-ton mark, but exceeded those of September. Reports from all the docks, except the Chicago & Northwestern docks at Escanaba and Ashland, total 5,623,424 tons. During September the two Northwestern docks shipped over 800,000 tons. The September shipments were 6,217,189 tons. While the Ore movement is starting out heavy this month, it is expected that there will be a decided falling off by the 15th, as a number of shippers will have their contracts for the season filled by that date with the exception of Bessemer Ore. A great deal of the Ore now coming down is being piled on Lake Erie docks. In view of the scarcity of Bessemer Ore, some of the furnace interests have begun to look after their next year's supply. While no contracts have been closed, one shipper has received requests from customers to reserve considerable tonnage for them at whatever is established later as the market price. While the question of next year's prices has not yet been seriously considered, some of the shippers are disposed to maintain this year's prices, which are as follows at Lake Erie docks, per gross ton: Old Range Bessemer, \$5; Mesaba Bessemer, \$4.75; Old Range Non-Bessemer, \$4.25; Mesaba Non-Bessemer, \$4; Siliceous Bessemer, \$2.75; Siliceous Non-Bessemer, \$2.35 to \$2.60.

Pig Iron.—The local market has been stagnant. Some further requests to withhold shipments until the first of the year have come in, but local furnaces are so well sold up that as yet they are accumulating very little, if any, Iron. While a few foundries will have to buy a little spot Iron before the close of the year, many of them have enough under contract to last them a month or more into next year. There are some inquiries for small lots of Foundry Iron for the first half of next year's delivery, but furnaces, as a rule, have stopped quoting nominal prices and request their prospective customers to wait until a market price is established. If a foundry is anxious to buy for next year at the present time, however, it would have no trouble in placing an order at the present price of about \$19.50, Valley furnace, for No. 2 Foundry. The changing of the Josephine Furnace of Corrigan, McKinney & Co., from Foundry to Bessemer Iron, which was to have been made November 1, has been delayed a few days. The furnace will produce 20,000 tons of Bessemer Iron. The company has received a number of inquiries for small lots of Bessemer in the past few days, but as yet has made no sales. There is practically no inquiry for Southern Iron. Quotations for the balance of the year, f.o.b. Cleveland, are as follows:

Bessemer	\$22.90
Northern Foundry, No. 1	21.00
Northern Foundry, No. 2	20.50
Northern Foundry, No. 3	20.00
Southern Foundry, No. 2	\$21.35 to 21.85
Gray Forge	20.40

Coke.—The market is quiet, but prices are firm. No inquiries are being received for Furnace Coke for next year's delivery, and foundries are holding off from making further purchases, with the expectation that prices will be lower. Consumers are well covered for the balance of the year. We quote Connells-ville Furnace Coke at \$3, at oven, for balance of the year, and 72-hr. Foundry Coke at \$3.25 to \$3.50, at oven, for the balance of this year and the first half of next year.

Finished Iron and Steel.—With the present financial situation, stringency of the money market and uncertainty as to future business conditions, consumers are buying in

small lots and only for their immediate needs. The situation has also seriously affected specifications on contracts, which have shown considerable falling off, consumers now specifying only for their immediate requirements. Little price cutting is reported. Most of the mills are holding firmly to established prices, believing that concessions would not stimulate business. The extreme tightness of the money market and the difficulty in securing loans have hampered industrial concerns and are responsible for the withholding of some new orders in small lots. Consumers need the material, but are unable to place their orders at the present time. This situation has also seriously affected the demand for Structural Material, which had been fairly good until a few days ago. Complaints come from every quarter that it is almost impossible to make collections. The implement makers seem to be less seriously affected at the present time than other interests, and they are specifying quite freely for Bars and Steel specialties. There seems to be a better demand for Steel Bars than for other lines of Finished Material, and the mills are pretty well supplied with orders. There is little demand for Iron Bars and the market is weak, there being some reports of price cutting. We quote Steel Bars at 1.70c., Cleveland, for car lots, with half extras. Local mills quote Iron Bars at 1.60c., Cleveland, outside mills quoting on the same basis, Pittsburgh. The price of Plates remains firm, but the demand is light, both in new business and on specifications. We quote Plates, 1/4-in. and heavier, carload lots, 1.80c., base, Cleveland. The Sheet situation is unchanged, mill business being light. We quote Beams and Channels at 1.80c., base, Cleveland. Forging Billets are held at \$31, at mill, with little demand. Jobbers are doing little mill business and their demand for material out of stock has shown considerable falling off. Warehouse prices remain stationary, except that there is some cutting on Sheets. We quote Steel Bars out of stock at 1.90c. to 1.95c., and Iron Bars at 1.95c. to 2c. Warehouse prices on Sheets are as follows: Blue Annealed, No. 10, 2.30c.; No. 28, One Pass Cold Rolled, 3.05c.; No. 28, Galvanized, 4.05c. Beams and Channels out of stock are 2.10c. to 2.15c., base. Stock prices on Boiler Tubes, 2 3/4 to 5 in., are 64 per cent. discount, and on Black Merchant Pipe, base sizes, 67 per cent. discount.

Old Material.—The only change during the week has been a further decline in prices of several grades of Scrap from 50c. to \$1 and more a ton. Prices of the more important grades of Scrap have fallen an average of \$3 per ton since the slump began, and dealers think that the bottom has nearly been reached. Lower prices this week have not aroused any buying activity. The mills are continuing their policy of buying a very small tonnage at a time for their immediate needs. The railroad offerings this week include about 1000 tons, to be sold by the Pennsylvania and 500 tons by the Wheeling & Lake Erie. Dealers' prices to the trade, per gross ton, f.o.b. Cleveland, are as follows:

Old Steel Rails.....	\$14.50 to \$15.00
Old Iron Rails.....	21.50 to 22.00
Steel Car Axles.....	19.00 to 20.00
Old Car Wheels.....	19.00 to 20.00
Relaying Rails, 50 lb. and over.....	27.50 to 28.00
Relaying Rails, under 50 lb.....	30.00 to 31.00
Heavy Melting Steel.....	14.50 to 15.00
Railroad Malleable.....	15.00 to 16.00
Agricultural Malleable.....	14.00 to 14.50
Light Bundled Sheet Scrap.....	10.00 to 11.00

The following quotations are per net ton, f.o.b. Cleveland:

Iron Car Axles.....	\$22.00 to \$23.00
Cast Borings.....	9.50 to 10.00
Iron and Steel Turnings and Drillings.....	10.00 to 10.50
Steel Axle Turnings.....	11.50 to 12.00
No. 1 Bushelling.....	12.50 to 13.00
No. 1 Railroad Wrought.....	15.00 to 15.50
No. 1 Cast.....	15.50 to 16.00
Stove Plate.....	12.50 to 13.00
Bundled Tin Scrap.....	10.00

Cincinnati.

CINCINNATI, OHIO, November 5, 1907.

Along with the more or less eccentric course of the Iron and Steel markets of the past few weeks, culminating finally in the break of the well maintained prices on Pig in the Birmingham District, must now be considered selling figures on the finished product. The annual convention of the machine tool men in New York is too recent, and the good results of that meeting too pronounced, to permit at this early date any positive statement that prices on tools have been cut, but the careful observer of shop conditions and the conservative estimator of modern business possibilities see some good chances for it, notwithstanding the splendidly equipped national organization. With the shops all running full time and practically nothing in the way of sales being made, the heavy order book has been pretty well worked up, so that a 30 days' delivery is now a comparatively easy thing to promise; in some shops quicker time could be made. There are in all the machine tool manufacturing districts a number of shops running on limited capital, and making a comparatively limited line. When these shops have caught up with their orders, and have a dozen or fifteen tools on the

stock floor, which will be the case before December 1, these producers will have to move their product. Tool manufacturers in this district view the existing situation rather hopefully, and will go on making tools for stock as soon as the advance orders are filled. One of the largest manufacturers in this field, which includes Hamilton, will make up \$400,000 worth of stock for the floor. In the meantime melters are beginning to interest themselves in supplying needs, which are beginning to be urgent, and buyers are coming out from cover, although as yet evidencing little interest in 1908 requirements. Coke men argue that the melt is keeping up well from the urgent and constant demands for shipments on contract. The price on all grades remains about the same, and no prospects for any material change soon. The failure of the Weber Foundry Company was not entirely unanticipated; the times and a little overestimation of requirements, both as to Iron and accessories, being responsible. Sales agents generally admit gradually receding prices on all grades of Iron, both Southern and Northern, and agree that the first quarter will bring out a considerably lower figure than has yet been quoted for the last quarter.

Pig Iron.—Transactions for the week have not been larger than, nor possibly so large as, the week previous, but inquiries have been better. Some sales of fairly good sized tonnage have been negotiated for immediate delivery. Following the break in Southern prices, the Northern furnaces are quoting lower, and a sale of No. 2 at \$19 at furnace is reported to-day. A 600-ton lot of Southern No. 2 is reported at \$17, Birmingham, and several smaller lots have been reported on that basis. A Columbus melter is said to be in the market for 800 tons of Northern No. 2 of a special analysis. There has been a little flurry on Gray Forge and Mottled, and some remarkably low prices have prevailed on certain lots in combination with other grades, although one agency reports a sale of Mottled on the last day of the month at \$15.25 at furnace. While generally admitting the existence of \$17 Iron, a number of local furnace representatives still maintain that the best that can be done on a direct sale is \$17.50 to \$18. The financial embarrassments of the past week or so are particularly unpleasant to the Pig Iron seller, whose bank will not take his paper and whose source of supply—the furnaceman—requires cash, 30 days, for his product. The consequence is that the sales agent, needing ready money so badly, is a very tractable quantity in the hands of the shrewd buyer, and this makes a very complex market. It is extremely difficult to get at the market price of Iron to-day, as resale lots have shown up in still greater volume since the furnace price has indicated a downward tendency, and some of the smaller furnaces have shown a disposition to meet these figures, while the larger ones maintain their attitude of independence. For the balance of the year we quote, f.o.b. Cincinnati, in which are figured the freight rate from Birmingham, \$3.25, and from the Hanging Rock District, \$1.20, as follows:

Southern Coke, No. 1.....	\$20.75 to \$21.25
Southern Coke, No. 2.....	20.25 to 20.75
Southern Coke, No. 3.....	19.00 to 19.50
Southern Coke, No. 4.....	18.75 to 19.25
Southern Coke, No. 1 Soft.....	20.75 to 21.25
Southern Coke, No. 2 Soft.....	20.25 to 20.75
Southern Coke, Gray Forge.....	17.50 to 18.00
Southern Coke, Mottled.....	17.00 to 17.50
Ohio Silvery, 8 per cent. Silicon.....	29.20 to 29.70
Lake Superior Coke, No. 1.....	20.70 to 21.20
Lake Superior Coke, No. 2.....	20.20 to 20.70
Lake Superior Coke, No. 3.....	19.70 to 20.20

Car Wheel Irons.

Standard Southern Wheels.....	\$29.25 to \$29.75
Lake Superior Car Wheels.....	27.70 to 28.00

Coke.—There is little or no change in Coke. Prices remain firm, with inquiry about normal. In the Pocahontas field there is said to be a little accumulation of stocks; in the Chesapeake & Ohio field a scarcity of cars that is delaying shipments a little. Connellsville 72-hr. Foundry is about normal, at \$3.25 to \$3.50.

Finished Iron and Steel.—Deliveries, complained about in October, have improved considerably, and Bars are now good for from four to five weeks and Sheets eight to ten. Structural Shapes are in fair demand, and sales from stocks are good, but stores report business generally quiet in most other lines. Dealers quote, f.o.b. Cincinnati, as follows: Iron Bars, carload lots, 1.80c., with half extras; small lots from store, 1.90c., base, full extras; Steel Bars, carload lots, 1.75c., base, half extras; small lots from store, 1.90c., base, full extras; Base Angles, carload lots, 1.75c.; small lots from store, 2.10c.; Beams, Channels and Structural Angles, 1.85c., base; small lots from store, 2.10c.; Plates, 1/4-in. and heavier, carload lots, 1.95c.; small lots from store, 2.20c.; Sheets, No. 16, carload lots, 2.20c.; small lots from store, 2.50c.; No. 14, carload lots, 2.10c.; small lots from store, 2.40c.; Steel Tire, 4-in. or heavier, carload lots, 1.95c., base; Plates, 3-16 and No. 8, carload lots, 2c.; small lots from store, 2.25c.; Sheets, No. 10, 2c., carload lots; 2.30c. from store; Sheets, No. 12, 2.05c., carload lots; 2.40c. from store; Light Sheets, Black, No. 28, carload lots, 2.75c.; Galvanized, No. 28, 3.90c.

Old Material.—No improvement is shown in the Scrap market, and dealers are all looking for lower prices. It is

more difficult than ever to record an intelligent market, and the following prices, f.o.b. Cincinnati, are given as the best obtainable:

No. 1 Railroad Wrought, net ton.....	\$14.00 to \$14.50
Cast Borings, net ton.....	6.50 to 7.00
Steel Turnings, net ton.....	7.50 to 8.00
No. 1 Cast Scrap, net ton.....	14.50 to 15.00
Burnt Cast and Wrought, net ton.....	8.50 to 9.00
Old Iron Axles, net ton.....	20.00 to 21.00
Old Iron Rails, gross ton.....	17.50 to 18.00
Old Steel Rails, long, gross ton.....	14.50 to 15.50
Relaying Rails, 56 lb. and up, gross ton	26.50 to 27.00
Old Car Wheels, gross ton.....	20.50 to 21.00
Mining Car Wheels, gross ton.....	11.50 to 12.50
Low Phosphorus Scrap, gross ton.....	17.00 to 17.50

The German Iron Market.

BERLIN, October 24, 1907.

The outflow of the tide in the Iron trade has made marked progress since my last report of four weeks ago. This is now everywhere recognized, and it can hardly be said that anybody who knows the situation takes any longer an optimistic view of the outlook. Several days ago a trade report of the leading newspaper of Essen gave the stock market a decided setback in Iron shares. As its utterances seem to be typical of the general feeling in the market, and as the writer evidently has the best facilities for observing the state of the trade, a few of the opening sentences of his report may be reproduced here:

A Discouraging View of the Situation.

Market conditions have latterly shown a development which gives occasion for the most serious concern and is gradually dissipating the hope that the trade will continue to make steady progress. The waiting attitude is extending itself to all sections of the market and has intensified itself to the point of an absolute lack of employment. All the more pressing becomes the need of the works for new orders, since they see the amount of work on hand shrinking more and more, and they are not able to find adequate substitute orders with which to keep their recently enlarged establishments employed.

The competition for new business has assumed forms such as have seldom been seen. Even the managers of the works are themselves already going on the road to drum up trade wherever an opportunity presents itself. Dealers and consumers are therefore being overrun with visits from the representatives of the works, and the former are fully availing themselves of this chase after new orders to get lower prices. The consequence is that prices for goods not regulated by trade combinations are coming down, no longer gradually, but by leaps and bounds. Dealers are in many cases abandoning the methods of steady and genuine business and are beginning to speculate for the fall by selling short, and then slowly to buy back at steadily decreasing prices to cover their engagements.

This is certainly the most gloomy view of the situation that has yet been published by any authority deserving to be heard. Numerous other trade reviewers have expressed themselves in terms somewhat less pessimistic.

Attitude of the Steel Syndicate.

The Steel Syndicate, however, still seems to view the situation with considerably more confidence than other authorities, which is doubtless due to the fact that its published utterances have to do only with Rails and Ties, Structural Forms, and semi-finished Material—that is, with the so-called class A goods—in which it both regulates prices and makes allotments. It has had nothing to say of class B products (Sheets and Plates, Bars, Wire Rods, &c.), in which it makes no attempt to fix prices, and in which, precisely, the least satisfactory state of the trade is to be observed at this moment. Even in class A, moreover, the Syndicate has had to admit a weakening of the situation, except in Steel Rails and Ties.

Two weeks ago it held a meeting and voted to return to the practice of paying a bounty on Steel used for manufacturing finished goods for the export market. The bounty will amount to 10 marks, to be paid in the form of a drawback upon the Steel material consumed. It is a remarkable fact, and strikingly illustrative of present conditions, that this action of the Syndicate was taken only three weeks after it had refused to listen to a similar appeal for relief from the rolling-mills. The return to the bounty system involves an open admission of the changed position of the market. When the Syndicate voted, about the middle of last year, to abandon that system it did so with the explanation that the situation of the home market was then so satisfactory, the consumption so heavy, that there was no reason to continue by artificial means to push the export trade. Now all that is changed.

September Shipments.

The Syndicate reports the September movement in class A goods the lightest of the year, having amounted to only 419,623 tons, as compared with 521,469 tons for the previous month, and 444,429 tons for September, 1906. The movement in Structural Steel was the smallest since February, 1905, when a great strike in the coal trade caused an artificial contraction in production and distribution. Even Steel Rails and Ties show a lighter movement than for any month this year except April. The Syndicate has given out an explanation of the shrinkage in its trade, attributing it to the fewer work days of the month, the strike at Antwerp, and, in the case of structural goods, the near approach of

winter; but this explanation has been criticised as not covering the case completely.

As was said above, the least satisfactory section of the market is that embraced in class B products. This is particularly the case with Bars, the price of which, when made of soft Steel, has fallen fully 25 marks since the downward movement began. The price is now nominally 130 marks, but it is asserted in the trade that some of the works are selling as low as 125 marks. At these prices hardly any profit is left for the mills that have to buy their Steel from the Syndicate works. The Syndicate is itself much concerned about the situation of the Bar mills, and it has been gathering statistical information from the various works with a view to organizing all the producers of Bars for regulating prices. A meeting for this purpose is being held at Düsseldorf to-day.

The position of the Plate and Sheet mills is hardly less satisfactory than that of the Bar mills. The great mixed producers are offering Plates in large quantities at 130 marks and even lower. At these prices the Plate mills which are compelled to buy material from the Syndicate are no longer able to compete, and it is said that a number of them have stopped bidding for new business altogether. The Syndicate also recognizes the critical state of the trade at this point and wants to organize producers; but its efforts have not yet progressed so far as in the case of Bars.

The Pig Iron Market.

The position of the market for Pig Iron is gradually changing for the worse. The Düsseldorf Syndicate, indeed, has refused to make any reduction of prices for the Rhenish-Westphalian industrial region, but recently it voted lower prices for the northern and coast districts of the country, where English Iron comes into competition with German. The new smelting company at Lübeck, which got its second furnace into operation about a month ago, is selling in behalf of the syndicate in the regions named, fighting at once English imports and the independent Kraft Works at Stettin. The dealers are complaining of a sharp contraction of foreign orders for Pig. Notwithstanding the unsatisfactory state of the general market, Ores are still very firm and in heavy demand. The mines in the Siegerland District are reported to be working at their utmost capacity to fill their contracts. They have orders running fully a year ahead.

The subject of Steel making by electrical processes is attracting increasing attention in Germany. Recently a trust-like company called the "Gesellschaft für Elektrostahl-Anlagen" was organized here to utilize the process of the Swedish engineer, Kjellin, and the German process of Röchling-Bodenhauser. The great electrical company, Siemens & Halske, is the leading member of the combination; and besides it there are firms in the Saar District and in Luxemburg participating, as well as the Swedish company, which owns the Kjellin patent. The Lindenberg Company of Remscheid, which has been making electrical Steel for nearly two years with the Héroult furnace, is increasing its capacity. It will put into operation in November a second furnace of 2½ tons capacity. Two other important establishments, the Bismarck-Hütte and Gebr. Böehler & Co., have acquired the right to manufacture Steel by this process. The Lindenberg Company paid a dividend of 9 per cent. Its annual report speaks in a very hopeful vein of the outlook for Electro-Steel products.

One striking feature of the numerous annual reports of the great Iron companies which have been appearing in the newspapers of late is the evidence they give of the large number of improvements being made in the capacity of the works. There is hardly a great company which does not give details of extensive works in process of construction or recently completed. Usually it is an improvement in the power plant, like the introduction of gas engines or steam turbines; often it is the addition of a rolling mill with improved methods of operation; in some cases it is a new furnace building or to be built. All this looks ominous for the Iron trade in the next year or two, if a period of depression now sets in.

The Coal Trade.

BY FREDERICK E. SAWARD.

It is remarkable, in view of the present industrial and financial situation, that the Coal trade continues so good in demand and in the stability of prices. While other business interests are experiencing difficulties in regard to their financial affairs, or perhaps are observing signs of trouble on the horizon, the Coal trade goes merrily on, and producers and dealers are now congratulating themselves on prospects of closing the best year in the history of the business.

Soft Coal continues very strong, and the scarcity of labor or scarcity of cars is quoted in various places as a detrimental feature. The scarcity of labor has come as somewhat of a surprise to producing interests, being indeed extraordinary in this country. Car scarcity is not so great as anticipated, very likely because of the fact that labor is scarce and so the mines cannot ship to their full capacity nor anything like it. However, the two features work together to

maintain a high level of prices, and very likely producers are just as well off as if Coal was moving in greater volume, in which event some low prices would probably be heard of.

Small sizes of Anthracite are active again and the demand is sufficient to take everything offering. All of the higher grades are especially active, and in many cases much short of the demand. This is reflecting favorably upon the cheaper grades, causing a demand for them at fair prices. This activity has not as yet caused the shortage prevailing a few weeks ago, but no doubt will cause one equal to it with a little extended cool weather. The line trade is good and is taking a large quantity of Coal at full circular prices, and the individual shippers are, as a rule, catering to that market as much as possible. As a result some of them are short of Coal to supply orders in the outlying districts, where the circular prices are lower. Pea Coal in line territory is strong at \$2 and Buckwheat at \$1.50, making them shorter in supply for tidewater. Mines are working full time and are called upon to produce as much as they can to supply the demand put upon them. From the present outlook for steam sizes, the winter's use of these fuels being always larger than at other times, they may advance still further in price. At present they may be quoted as follows:

Size.	Hard.	Free burning.
Pea	\$3.00 to \$3.25	\$3.10 to \$3.25
Buckwheat	2.60 to 2.75	2.60 to 2.75
Rice or No. 2 Buckwheat	1.80 to 2.00	1.90 to 2.10
Individual and Washery Pea, \$2.90 to \$3.10; Washery Buckwheat, \$2.45 to \$2.55; Washery Rice, \$1.80 to \$2; Barley, \$1.50 to \$1.60.		

Prices quoted for Lehigh Coals are for ordinary brands; special Coals will average 25 to 30c. higher. Free burning prices are for Coal from the large producing companies; the individuals and middlemen may charge 10c. or more additional.

In view of the fact that 40 per cent. of the Anthracite production is now made up of Pea Coal and sizes smaller than Pea, the price level that is maintained for these sizes is a matter of importance to the producing interests.

The year will be a record one in all respects. The shipments of the different Anthracite companies for the year to October 1 compare with the nine months of 1906 as follows:

Companies.	1907. Tons.	1906. Tons.
Philadelphia & Reading	10,308,070	8,083,782
Lehigh Valley	8,571,590	7,334,952
Jersey Central	6,469,784	4,960,418
Delaware, Lackawanna & Western	7,718,669	6,744,925
Pennsylvania	4,291,305	3,427,876
Erie	5,355,118	4,010,537
New York, Ontario & Western	2,023,528	1,791,020
Delaware & Hudson	4,907,552	3,942,158
Totals	49,645,616	40,295,648

There have been many inquiries from abroad for tonnage, but in all instances these have been turned down. There seems to be no Soft Coal available over and above contract requirements at the present time, whatever may be the circumstances later on. A French railroad tendered a contract for 300,000 tons of Soft Coal to several operators here at prices higher than have been offered for foreign business so far this season. It was declared that if the Coal proved satisfactory the business could be had for several years. The inter-colonial Railway of Canada was also in the market for 60,000 tons, to be delivered near Quebec by December 1, but it got no Coal. The Dominion Iron & Steel Company was also in the market for a large tonnage, because of its disagreement with the Dominion Coal Company over the quality of fuel supplied. Numerous smaller orders from Canada and European markets have been sent here within the last fortnight. Operators were inclined to book some of them, but the outlook was too serious to take any chances.

The Navy Department has succeeded in securing a supply for the Pacific fleet, but this was done more by personal effort than by any bids. These were very few indeed from any of the American Coal miners and shippers, as the grade of Coal used is of the West Virginia variety. By forestalling, as it were, the deliveries under existing contracts, there will be Coal enough for the fleet delivered at the required points. The contracts are at pretty good figures, and, together with a certain outside purchase at even higher cost, the incident is closed so far as Coal is concerned. The freightage is another question, and that has been contracted for as follows, so far as quantity and rate is concerned, mainly in foreign freighters from Hampton Roads:

Destination and company.	Amount.	Price per ton.
Trinidad, West Indies SS. Company	7,000	\$1.74
Rio, Lind & Co.	6,000	3.10
Punta Arenas, Lind & Co.	20,000	4.90
U. S. Shipping Company	20,000	4.84
Callao, American Trans. Company	25,000	6.09
Lind & Co.	25,000	5.80
Magdalena Bay, Tweedie Trading Company	25,000	6.50
Lind & Co.	25,000	6.30
Mare Island, Lind & Co.	40,000	6.15

The West Virginia output would no doubt be larger than it is were labor to be had in adequate degree, but as the operators of that State are working on the open shop principle, labor is and will continue to be scarce. In fact, it has been stated that West Virginia is under boycott by the union, and men who are sought in other States for work in West Virginia are not easily secured.

Metal Market.

NEW YORK, November 6, 1907.

Pig Tin.—Deliveries during the month were small, amounting to but 2800 tons, showing a decrease of nearly 2500 tons for the first 10 months of the year. The total visible supply October 31 was 11,872 tons, a decrease of 1476 tons compared with the end of September and a decrease of less than 100 tons, as compared with the same date last year. Stocks in the United States, however, show a gain of approximately 300 tons, as compared with September, being 1543 tons at the end of October. One reason for the poor statistics is the fact that shipments from the Straits were smaller, the total decrease for the first 10 months of this year amounting to approximately 2000 tons, as compared with the same period last year. Shipments from Australia, however, have increased, and are approximately 900 tons greater than last year. Labor conditions in the Far East are unsettled, which accounts, in a large measure, for the small shipments from that part of the world. Business during the week has been largely influenced by the financial situation which has seriously hampered the collection of out of town drafts. The uncertainty was such that consumers only wished to buy for immediate consumption. It is felt that an improvement will be noted from now on in the volume of business. There has been considerable irregularity in prices due to the causes mentioned, but the following quotations represent actual business:

	Cents.
October 30	31.75 to 31.90
October 31	31.80 to 32.00
November 1	31.80 to 32.25
November 4	31.50
November 6	30.60

The London market has declined, and closes weak at £138 10s. for spot and £140 10s. for futures.

Copper.—The exports of Copper from North Atlantic ports during October by steamer amounted to 28,786 tons. It is not improbable that other shipments will bring the month's total up to 30,000 tons, making a new high record for any one month. As it is, the present record has been only approached once, that being in January, 1904, when 29,085 tons were exported by steamer and sailing vessels from Atlantic and Pacific ports. The imports of Copper during September showed a decrease, being 8100 tons, but the total imports for the first nine months of the year are 96,700 tons, against 76,100 tons for the same period last year. The excess of exports over imports so far this year is only 60,000 tons, as compared with 96,000 tons during the same period last year. This unfavorable balance will probably be reduced somewhat before the end of the year, but can scarcely be eliminated. Business during the week has been at a standstill as far as large lots were concerned, particularly in Europe, where a 6 per cent. Bank of England rate is looked upon as a dire calamity. The buying referred to in the report of last week only covered consumers' wants against the business on their books, and at least one manufacturing consumer reports that his mill is working full time on orders. The upturn was evidently started by heavy buying from European speculators who took large tonnages at 11.75c. This metal will come on the market again, but if nothing unforeseen occurs will be sold at a good profit. "The situation looks better," says one well informed Copper buyer, "and while lower prices may be made we will not have a demoralized market again." The London market is easier at £63 12s. 6d. for spot and £63 for futures. Best Selected is held at £68 10s. The exports for the first four days of this month were 3743 tons. Spot Lake can be had at 14.50c., Electrolytic at 14.37½c. and Casting Grades at 13.87½c.

Waterbury Average.—The Waterbury average for October was 13.75c.

Pig Lead.—Through an error, last week, the price of the American Smelting & Refining Company governing old contracts was printed 4.50c., when it should have been 4.75c. This price of 4.75c. continues to govern old contracts. Spot Lead is easier, and can be had at 4.40c., St. Louis, and 4.60c., New York, while shipments can be obtained here at 4.56c.

Spelter.—Some new business has developed, and prices are firmer at 5.50c., New York, and 5.35c., St. Louis. There has been buying from both Brass mills and Galvanizers.

Antimony.—Prices are easier, and there is little business. Hallett's can be had at 10.50c. and Cookson's at 11.50c.

Nickel.—Ton lots can be had at 45c., and smaller quantities at 50c. to 60c.

Ferroalloys.—Prices are more or less firm; 50 per cent. spot Ferrosilicon being held at \$103 and Ferromanganese at \$52, Baltimore.

Tin Plates.—Orders are rather scarce, but deliveries are well taken, and there has been no piling up of stock. Prices are unchanged at \$3.90, Pittsburgh, and \$4.00, f.o.b. New York. Prices abroad are 3d., lower at 13s. 6d.

Old Metals.—There has been a better demand, but deal-

ers have little to sell. The advance has been so sudden that manufacturers with Scrap to sell are inclined to await developments. Dealers' selling prices are without change, as follows:

	Cents.
Copper, Heavy and Crucible.....	13.00 to 14.00
Copper, Heavy and Wire.....	12.50 to 13.50
Copper, Light and Bottoms.....	11.50 to 12.50
Heavy Machine Composition.....	12.50 to 13.50
Brass, Heavy.....	10.00 to 11.00
Brass, Light.....	8.00 to 8.50
Clean Brass Turnings.....	8.50 to 9.00
Composition Turnings.....	11.00 to 12.00
Lead, Heavy.....	4.37½
Lead, Tea.....	4.12½
Zinc Scrap.....	4.25

New York.

NEW YORK, November 6, 1907.

Pig Iron.—The week has been a very dull one, neither buyers nor sellers caring to commit themselves to new business while the financial situation has been so threatening and so dangerous. While it is now admitted that it was more serious even than appeared on the surface, the conviction is rapidly spreading that the worst is over. The fact is realized, however, that it will take months before normal activity can be resumed. The market is easier. We quote nominally Northern Iron, tidewater, \$20.50 to \$21 for No. 1 Foundry, \$18.75 to \$19.25 for No. 2 Foundry and \$18.25 to \$18.75 for No. 2 Plain. Alabama Irons are quoted nominally \$21.50 to \$22 for No. 1 Foundry, and \$21 to \$21.50 for No. 2 Foundry.

Steel Rails.—The single sale reported this week for 1908 delivery is 3000 tons to the Buffalo, Rochester & Pittsburgh. The market is exceedingly quiet, and little business is looked for this month.

Structural Material.—Perhaps more emphasis is given to financial considerations in connection with plans for new work. Temporarily little interest is taken in the situation by consumers. On the other hand, fabricating companies have had few cancellations thus far, and work begun is being carried forward in most instances. In New York City a new building for Union Theological Seminary, calling for 2000 tons, is to be figured on this month. We quote mill shipments, tidewater delivery, as follows: Beams, Channels, Angles and Zees, 1.86c.; Tees, 1.91c. On Beams, 18 to 24 in., and Angles over 6 in., the extra is 0.10c. Sales out of stock, of material cut to length, are made at 2¼c. to 2½c.

Bars.—Business is light. While the leading mills are maintaining Bar Iron on the basis of 1.60c., Pittsburgh, or 1.76c., tidewater, more or less shading is being done by the smaller manufacturers. Steel Bars continue to be held at 1.60c., Pittsburgh, or 1.76c., tidewater.

Plates.—The most important business developing in this market for some time is the pending contract for two Steel piers by the City of New York, which will require in their construction 1500 tons of Plates. The general demand is of very small proportions. Prices are continued as follows for tidewater delivery: Sheared Tank Plates, 1.86c. to 1.96c.; Flange Plates, 1.96c. to 2.06c.; Marine Plates, 2.26c. to 2.36c.; Fire Box Plates, 2.75c. to 3.50c., according to specifications.

Cast Iron Pipe.—Business continues exceedingly light, no lettings of any importance being now in prospect. The Philadelphia purchase of 5000 tons, placed last Friday, was split up among several foundries. Carload lots of 6-in. are quoted at \$32.50 to \$33 per net ton at tidewater, but orders calling for good sized quantities could be placed at considerably less.

Old Material.—Cast Scrap and Stove Plate are about the only grades of Old Material in any demand, but in these quite a fair trade is being done. The Steel works and rolling mills are almost wholly out of the market and even inquiries are extremely light. Holders of Old Material compelled to realize would probably be obliged to accept prices lower than the following nominal quotations, per gross ton, New York City:

Old Girder and T Rails for melting.....	\$11.50 to \$12.00
Heavy Melting Steel Scrap.....	11.50 to 12.00
Old Steel Rails, rerolling lengths.....	15.00 to 15.50
Relaying Rails.....	24.00 to 24.50
Old Iron Rails.....	19.00 to 20.00
Standard Hammered Car Axles.....	23.00 to 24.00
Old Steel Car Axles.....	17.00 to 18.00
No. 1 Railroad Wrought.....	15.00 to 15.50
Iron Track Scrap.....	13.00 to 13.50
No. 1 Yard Wrought, long.....	13.50 to 14.00
No. 1 Yard Wrought, short.....	12.50 to 13.00
Light Iron.....	7.50 to 8.00
Cast Borings.....	8.00 to 8.50
Wrought Turnings.....	10.00 to 10.50
Wrought Pipe.....	10.00 to 10.50
Old Car Wheels.....	20.00 to 20.50
No. 1 Heavy Cast, broken up.....	14.50 to 15.00
Stove Plate.....	13.50 to 14.00
Grafe Bars.....	11.50 to 12.00
Malleable Cast.....	14.50 to 15.00

Iron and Industrial Stocks.

NEW YORK, November 6, 1907.

The stock market is still staggering under the effect of the general weakening of confidence resulting from what is now beginning to be termed the Roosevelt panic. Transactions have been light in industrial stocks and fluctuations have generally been rather narrow. In some instances the lowest prices of the week were touched on Monday morning. The range of prices on active stocks from Thursday of last week to Monday of the present week was as follows: United States Steel common 22½ to 25½, preferred 82½ to 84½; Car and Foundry common 24¼ to 26¼, preferred 80¼ to 83; Locomotive common 36½ to 37½, preferred 84 to 87; Steel Foundries common 4½ to 5½, preferred 20; Colorado Fuel 15 to 17¼; Pressed Steel common 16½ to 17½, preferred 70 to 72; Railway Spring common 24 to 26½; Republic common 13 to 15, preferred 54½ to 57½; Sloss-Sheffield common 31¼ to 33½, preferred 80; Cast Iron Pipe common 18¼ to 19¼, preferred 49½ to 55; Can common 3½ to 4, preferred 36 to 37½. Last transactions up to 1.30 p.m. to-day are reported at the following prices: United States Steel common 25½, preferred 84½, ex-dividend; Car & Foundry common 27¼, preferred 81; Locomotive common 39½, preferred 87; Colorado Fuel 17¼; Pressed Steel common 18½, preferred 70, ex-dividend; Railway Spring common 24¼; Republic common 16, preferred 58½; Sloss-Sheffield common 36; Tennessee Coal 130; Cast Iron Pipe common 20; Can common 3½, preferred 37½.

The Pittsburgh Coal Company, Pittsburgh, has issued a statement of earnings for the nine months ended September 30, which shows net profits of \$2,109,049, an increase of \$702,441 over the same period of 1906. Gross earnings show an increase of \$492,956 for the period. The statement for nine months ending September 30, 1906 and 1907, is as follows:

	1907.	1906.
Gross earnings.....	\$4,207,364.67	\$3,714,408.59
Less—		
Allowance for depletion of coal lands.....	550,880.15	557,465.30
Allowance for depreciation of plant and equipment.....	730,142.11	871,544.86
Accrued interest on first mortgage bonds.....	817,293.33	878,791.34
Net earnings.....	\$2,109,049	\$1,406,607.09

Trade Publications.

Electric Drills and Grinders.—Hisey-Wolf Machine Company, 2850 Spring Grove avenue, Cincinnati, Ohio. Catalogue No. 6. Illustrates and describes fully the company's line of portable electric drills and grinders wound for both direct and alternating current, and also contains much making it a handy book for reference.

The Core Room.—The S. Obermayer Company, Cincinnati, Chicago and Pittsburgh. Special edition of the *Obermayer Bulletin*, devoted exclusively to the core room. Contains a variety of well written articles on core work, besides showing a number of modern appliances for getting the largest amount of product with the smallest outlay. The publication reflects great credit on the progressive company responsible for its existence.

Electrical Equipment.—Fort Wayne Electric Works, Fort Wayne, Ind. Bulletins. No. 1094, superseding No. 1044, refers to belted direct current generators, type L.F. No. 1095, superseding No. 1075, deals with enclosed alternating current multiple arc lamps, 104 volt, type ACM, form C. Bulletin No. 1096, superseding No. 1081, deals with type A transformers.

October Ore Shipments.—CLEVELAND, OHIO, November 6, 1907.—(By Telegraph.)—Ore shipments during October were 6,482,654 tons, a gain of 1,419,880 tons over last year. The October movement was the second largest of the year. The total shipments up to November 1 were 37,041,861 tons, which is only 471,728 tons behind the shipments for the entire year of 1906. In 1906 the movement for November and December was 4,274,754 tons. It is believed, however, that the shipments for the two months will be heavier this year, and that the total movement will be nearly 42,000,000 tons.

Notice has been posted in the Bessemer steel plant of the Republic Iron & Steel Company, Youngstown, Ohio, to the effect that the wage scale for all tonnage men will be taken up for adjustment on January 1. Under the terms of the scale contract between this company and its men, 60 days' notice must be given by either side before any change in wage scale rates can be made.

Gyroscopic Motion.*

Its Application in the Mechanical Arts.

The application of rotating tops means a new and hitherto unused mechanical element for the practical arts. This little valued instrument is everywhere known as a child's plaything, and is in the form of a humming top set in motion by a string which has been wound about the spindle of the top and then quickly withdrawn. Further, as a matter of interest, gyroscopic motion has been studied by physicists, and already every physical laboratory contains a series of gyroscopes. No doubt hangs over the theory of gyroscopic motion, and, besides, nothing new can be said on this subject. There must, however, for an understanding of this question be brought into remembrance some of the physical facts, which concern gyroscopic motion.

For example, if one places a humming top which is not in motion upon a horizontal surface it falls over immediately. The same thing happens in the case of a circular disk—for instance, of a coin having a very thin edge. However, if the humming top is set in quick motion it does not fall over any more. Likewise, a circular disk (coin) does not fall over, as long as it runs rotating over the table. Further, the top permits itself to be put into what are apparently the most impossible positions; for example, it may be so placed upon the edge of the table that its axis, with one end resting on the edge of the table, hovers freely in the air, either horizontally, or obliquely upward or downward.

Merely the Phenomenon of Inertia.

These bodies appear partially discharged of their gravity. In reality, however, nothing else is presented than the old and well known phenomenon of inertia. The rolling coin and the rotating top persist in their condition or position; and if one, nevertheless, wishes to move them from their direction of motion, they manifest a distinct resistance.

To the displacement of the axis of a rapidly rotating top corresponds the exertion of a very appreciable force, which is all the greater the greater the velocity of rotation of the top. If the velocity decreases then the effect of gravity comes in at once. The top begins to stagger—a phenomenon which, as is known, is termed nutation—then the staggerings become continually more pronounced until at last a final stagger causes the top to fall.

From this it comes to pass that the inertia of the axis and the resistance which it sets up stand in relation with the active force of the top. If the active force decreases, then the moment of inertia decreases likewise. Inertia is, in general, an actual force and not an empty principle, and the centrifugal effects are at equal distances radially forces of inertia which neutralize each other in their tensions upon the axis. But, likewise, the mass of the disk possesses inertia; that is, it persists in the plane which it determines by its position. Correspondingly, will the axis, standing in fixed relationship with the plane of rotation of the top, maintain its position, or rather a corresponding force must be exerted whenever it is to be displaced from its position. The active force transferred to the top is present, in so far as it is not consumed through the various resistances to motion (friction, resistance of the air), as inertia. It increases, thus, like the active force [energy], with the mass and the square of the velocity.

Of unconscious, one might say accidental, applications of the principle of inertia of the axis, or rather of the inertia of the plane, there exist many examples. Whenever a bicyclist mounts his wheel he will fall if he does not pedal. When, however, he begins to pedal, both wheels of the bicycle act as rotating tops, the horizontal axes and the planes of rotation perpendicular to them persist in the assumed direction and lend to the wheel through their very considerable moments of inertia great stability, which brings it about that one may move along without falling just as securely as with a four-wheeled conveyance.

It is then really very surprising that this unconscious mechanical application of the inertia of the plane in the case of the bicycle was not immediately followed by the thought of the mechanical application to railroads or other vehicles, and that only very recently has the thought been seized upon, as we shall hear later on. The maintenance of the plane, in the case of means of transportation, is likewise a serious obstacle to their capability of guidance, as soon as they do not run upon rails. For example, the automobile can be guided around curves only when the velocity is reduced, since the front wheels act as refractory rotating tops.

Gyroscopic Motion's First Application.

The first conscious application of gyroscopic motion, so far as practical mechanics go, was made in the case of the mariner's compass. The compass, which seamen have used since the end of the middle ages, exhibits various defects. The needle is considerably influenced by magnetic disturbances. Variations of the magnetism of the earth may cause deviations from the course, and so on. On this account, it has been attempted very lately to replace the old magnetic compass by gyroscopic compasses, like those which have been constructed by a great number of inventors. The axis of this style of compass points continually in an entirely definite direction, and however the ship may twist or turn, this direction will never be changed by the axis, so long as the gyroscope rotates. And the axis will consequently afford the mariner a better hold of the direction to be pursued than the needle compass hitherto used.

Likewise, the experiments of the director of the German-Lloyd in Bremen, Consul Schlick, have attracted great attention. He introduced into a vessel a gyroscope with a vertical axis, which was set in rapid motion by a turbine. The spindle of this gyroscope maintained its position unchangeably, and whenever, consequently, the hull of the vessel was securely united to the gyroscope, it likewise attained a great stability. In consequence of this, the waves have only a slight influence over the vessel any longer. The marine gyroscope of Schlick is said to serve as a preventive of seasickness.

The practical experiments with the marine gyroscope, which were undertaken during stormy weather upon the Lower Elbe and in an old torpedo boat under full speed, have realized very satisfactory results. Through the rotation of the marine gyroscope, the rocking of the vessel was almost entirely eliminated.

The Gyroscopic Railroad.

Another interesting application of the gyroscope is sought to be introduced by the engineer, Louis Brennan. The way and manner in which he hopes to derive an advantage for the operation of railroads may be understood from what has been said concerning the bicycle. The railroads up to the present time have had to make use of two rails, since in the case of operation upon one rail the slightest variations of the center of gravity would have caused important totterings of the car body and, consequently, disturbances of operation. The car body must also, therefore, be equally supported laterally. That is to say, it must rest upon at least two rails. Long ago efforts had been made to construct "mono-rail railroads," i. e., railroads whose cars move upon only a single rail. All these efforts failed, because of the circumstances just referred to, especially because of the severe rolling of the car at the slightest disturbances of the equilibrium. Engineer Louis Brennan proposes now to solve the problem of the mono-rail railroad through simultaneous application of the gyroscopic effect. He introduces a gyroscope into railroad cars (just as Consul Schlick does in the case of vessels), which gyroscope is set in very rapid motion through a motor. The spindle of the gyroscope is securely connected with the car, which attains in consequence a great stability. It can run upon one rail just as safely as the bicycle upon the street. Such a railroad has been constructed as a model and operated perfectly upon a small scale. To be sure, it is questionable whether the expenditure on power for the gyroscope is not greater than the saving which one accomplishes in motive power, rails, &c. Consequently, one may, provisionally, not yet regard the gyroscopic railroad as the road of the future.

* Translated from the *Allgemeine Ingenieur Zeitung* of August 15.

The Machinery Trade.

NEW YORK, November 6, 1907.

Reports of retrenchments by more large corporations the past week, together with the continued stringency of the money market, have shaken the confidence of machinery houses, and not many are sanguine as to the resumption of a more active demand for machinery for some time to come. The main difficulty at present seems to be the inability of companies to finance their business, and they find themselves in the peculiar position of having their plants filled with work and a moderate number of orders coming in, yet are compelled to reduce forces, close part of their plants and otherwise curtail operations because they cannot get the money to carry on their business. Trade in the past week was rather quiet, but apparently not more so than during the past two or three weeks, and there is a moderate amount of new business developing daily. While the transactions cover only a few tools each they are of sufficient volume to indicate a moderate but steady demand that should increase as soon as financial conditions ease up. One large manufacturer is of the opinion that conditions will change for the better around the first of the year. Within the past few days new projects came to light, which will necessitate the purchase of a large amount of new machinery.

The demand for crane equipment has fallen off to some extent, and manufacturers in that line have been getting a chance to catch up on their orders. This is especially true with the larger cranes, delivery terms on which have eased up to such an extent that orders can invariably be filled within 60 days.

A prominent machinery man who handles considerable export trade for South America, especially in the sugar machinery trade, states that there is an unusual demand for equipment from those countries both in his special line and in the line of railroad machinery. He declares that the export men are now able to give prospective purchasers better terms regarding deliveries, and in consequence they are competing fairly successfully with the German and English houses, especially in cases where they can afford to give good credit terms. Several engineers from South America, especially two Brazilian representatives, have been in New York of late making inquiries as to purchases, and judging from their statements the export man declares business conditions generally in the South American countries are good and there is a growing demand for machinery equipment.

Standard Oil Company's New Shops.

F. H. Wheeler, purchasing agent for the Standard Oil Company, 26 Broadway, New York, is collecting data with a view to purchasing equipment for a system of shops to be built on the company's property at Bay Way, near Elizabeth, N. J. It is understood that the project will entail an expenditure of several million dollars, and preliminary plans include a machine shop, 100 x 250 ft., one story in height; one-story woodworking building, 150 x 300 ft.; foundry, 50 x 100 ft.; forge shop, 75 x 100 ft., all to be one story in height, and a three-story power house, 100 x 200 ft. As far as can be learned in the trade, no machinery specifications have been issued for this project, but Mr. Wheeler is getting together plans covering the purchases the company will make. It is stated that the shops are to be used in connection with the company's oil refinery on Newark Bay. The company is purchasing some machine tools for its plant at Bayonne, N. J., not far from the site of the proposed new plant.

Orders are being placed for about \$200,000 worth of railway equipment by J. G. White & Co., 49 Exchange place, New York, for the Eastern Pennsylvania Railroad Company, which controls extensive electric railroad systems in eastern Pennsylvania. J. G. White & Co. are the managing operators of the company's systems, and the present work includes the construction of about 35 miles of track and the requirements include everything needed in interurban railroad construction work. At present the company's systems have consisted of two divisions, one centering at Pottsville and the other in the Mauch Chunk territory. It is proposed to join the divisions by a road from Pottsville through Middleport, Miqua and Lanford to Mauch Chunk. The new road will be operated from the Mauch Chunk power station, which now has about 1000-kw. capacity and which is to be increased by two generating sets of 1000-kw. capacity each. J. G. White & Co. have given orders to the American Car & Foundry Company for 80 box cars and 15 passenger coaches for use on the Philippine railroads now in course of construction by the contracting company. The purchasing of these railroads has been going on for some time past, and it is stated that about 20 miles of the projected railroad lines are in operation. It has been stated in these columns that the company was awarded a contract for the construction of extensive railroad systems on the islands of Panay, Negros and Cebu, and for more than a year past the construction

gangs have been at work on the three islands. The plans include the construction of three complete car plants, one on each island, and later on it is expected that there will be a large amount of purchasing for the equipment of those shops. The present machinery requirements have been made up from plants which the company has had in operation at Iloilo and other points where extensive harbor improvements have been installed. Machine shops were maintained at those points during the construction work and afterward were sent to the various railroad divisions. When the railway lines are put in operation, however, the machine shop equipment now on the islands will be by no means ample to equip the proposed shops, and it is expected that within a year these machine tool requirements will come before the trade.

A contract has been awarded by the Alliance Gas & Power Company to J. G. White & Co. for enlarging its power plant by about 750 hp. The equipment will include steam turbines, boilers and electrical apparatus. When this work is completed it is proposed to make another addition of about the same size.

The announcement last week that the New York, New Haven & Hartford Railroad has secured control of the New York, Westchester & Boston Railroad and the New York, Port Chester & Boston Railroad, which were merged some time ago, caused considerable speculation in the trade as to whether the rapid transit project would be carried out as planned. It will be remembered that the engineers in charge of the arrangements for the construction of the trolley lines had decided on the erection of a power plant of about 15,000 kw. capacity, and a repair plant to be built near Mt. Vernon, capable of taking care of about 200 cars. Many in the trade were under the impression that the acquisition of these companies by the New York, New Haven & Hartford Railroad would put an end to the rapid transit scheme. As the matter stands now, according to one of the engineers who has been working on the proposition, work on the line has been abandoned for the time being. It is declared, however, that the railroad company will hardly care to relinquish the valuable franchises it has acquired, and although the trolley lines would have been operated under the original ownership in opposition to the railroad company, it is intimated that the New York, New Haven & Hartford Railroad will eventually go ahead with the construction of the trolley lines. It is a certainty, however, that some time will elapse before work on the construction of the road is resumed, although engineers in charge see no reason why any changes should be made in the original plans when this occurs. The general organization of the trolley company's engineering force is being maintained, and this is taken as an indication that the plan to build the road has by no means been abandoned.

The Pennsylvania Railroad has announced that its construction plans have been curtailed to the extent that the completion of its tunnels under the Hudson River, its terminal in New York and other operations in this vicinity will be delayed to some extent during the coming year. This announcement includes the construction of its high speed line into Newark, which was being built under the supervision of the Hudson Companies and on which work has already been practically stopped. It is also understood that the large terminal transfer station and repair shops which the company expects to build at Harrison, N. J., will not be gone ahead with just yet. None of these plans have been given up, but the present condition of the money market, it is stated, has made it necessary to delay their completion longer than was expected.

The Mt. Vernon & Eastern Railroad has been organized, with \$1,000,000 capital, to build a standard gauge steam or electric railroad in Westchester County, N. Y., from Mt. Vernon to Lewisboro. The company is headed by Oakleigh Thorne, who is also connected with the New York, Westchester & Boston interests. Beyond the fact that the road is to be built no announcement has been made of the company's plans.

The Buffalo Tube Company, 255 Rano street, Buffalo, N. Y., which was recently incorporated and which recently purchased a building site on Rano street, bordering on the Delaware, Lackawanna & Western Railroad, is erecting a plant 40 x 100 ft., which will be equipped with a full line of modern machinery for the reduction of standard sizes of copper tubing to the special sizes used in automobiles, refrigerating plants, gas engines and lubricating apparatus. The plant is expected to be ready for operation by January. Howell R. Wood is president; William M. Parker, secretary; E. B. Sherwood, treasurer. The two former officers, with James H. Edwards, constitute the Board of Directors.

In view of the probability of the rebuilding of the plant of the South Atlantic Car & Mfg. Company, Waycross, Ga., which was almost totally destroyed by fire a week ago, it is of interest to note that the Board of Directors will hold a meeting within the next few days to definitely determine upon the rebuilding and equipment of the structures.

The Albany Power & Mfg. Company, Albany, Ga., has purchased the Porter Shoals property, near Albany, and will build a dam and power house next spring. About 10,000 hp. will be developed. J. E. Sirrine of Greenville, S. C., is chief engineer, and he will prepare the plans and specifications for

the power development. The present plant of the company, which has been in operation for the past two years, develops about 3000 hp., and is supplying power and light to Albany and various industries.

Machinery is being purchased by J. P. Hornaday & Co., 27 William street, New York, for a 25-ton ice making and a 50-ton refrigerating plant which is to be installed at Hubbard, Texas, for the Union Central Light & Ice Company of that city.

The Municipal Board, Manila, P. I., will receive bids until January 15 for electrically driven pumps and motors for the new sewerage systems in that city. There will be one main station and five substations, each equipped with two pumps and corresponding motors. Specifications may be obtained from either the Municipal Board or from the Bureau of Insular Affairs, Washington, D. C.

H. D. Watson, 70 Bridge street, New York, is purchasing equipment for a power plant to be built at Jersey City for the Great Atlantic & Pacific Tea Company. The plant will be of about 600 hp. and Corliss engines will be installed.

The contract of the Schofield Company, Philadelphia, Pa., for work on the Erie Canal has been canceled by the Superintendent of Public Works, who has taken charge of the plant in order to do such work as is necessary to insure the safety of the structures of the present canal and to protect the uncompleted work. The contract was annulled because of the financial embarrassment of the Schofield Company, and it is expected that the uncompleted work will be readvertised and a new contract awarded.

Chicago Machinery Market.

CHICAGO, ILL., November 4, 1907.

With the exception of a few days last week, immediately following the radical action taken by the banks for the conservation of the money supply, business has suffered no appreciable change, either in character or volume. A temporary lack of currency effected a sudden and almost complete cessation of trade for four or five days, but this condition has been so far relieved that ordinary transactions are no longer seriously restricted. An instance illustrative of the situation suddenly precipitated by the critical money stringency, and the completeness of the money tie up thereby occasioned, is furnished by the experience of a buyer in one of the numerous Western towns in which two or three consecutive holidays were declared during which time the banks remained closed. A cash order for two or three machine tools had been given on which rush shipment was desired. Although having money to cover the purchase price in the bank, it was under the conditions for the time being not available. There was nothing to do in the circumstance but to await the passage of the crisis, which has already taken place. A number of principal machine tool dealers report the receipt of a fair run of small orders coming mainly from the smaller interests. No buying of consequence by large plants of any kind is heard of. It is understood that instead of coming in the open market for general bids the 'Frisco system has arranged for a large part of the equipment required for its new shops at Springfield, Mo., through one or two concerns. The entire list comprised about 150 machines, on which only about three bids were considered. Outside of two or three tools purchased by the Chicago, Indiana & Southern Railroad, and inquiry for a small lot of perhaps half a dozen tools by the Santa Fé Railroad now in the market, nothing was heard of further railroad purchases during the week. There is still a fair demand for cement making machinery, a large amount of which is reported to be in contemplation for an extensive cement plant to be established in Mexico. Definite information as to this enterprise is not at present obtainable. Second-hand machinery is exceptionally quiet, and values are very much reduced over those ruling early in the year. Users seeking such equipment are only attracted by cheap prices, and dealers in second-hand machinery are bidding extremely low on such lots as are offered, especially when they include much worn and inferior tools. A list of machinery from the Westfield, Mass., plant of the Pope Mfg. Company is being offered in this market, but has excited little interest. There is a conspicuous absence of orders for machinery from every section, save in territory west of Chicago, which continues to supply the bulk of business now being offered.

A new four-story building is now being erected on Ohio street, near St. Claire, for the Pelouze Scale Company, Chicago, manufacturer of a complete line of spring scales and spring balances. The new buildings will afford considerable more space than that now occupied by the company, and for its equipment some new machinery will be required in the way of drill presses, millers, punches and die presses, and other tools adapted to the requirements of the work. The machinery will be electrically driven through independent motors. The estimated cost of the complete plant is \$75,000.

D. O. James, who now operates a gear cutting factory at 25-27 South Canal street, has secured a site on West Mon-

roe, near Aberdeen street, upon which a new factory building of brick construction, 48 x 120 ft., will be erected. The building will afford about four times the present floor space occupied, and will be steam heated and equipped with modern tools throughout. The principal part of this equipment has already been arranged for.

A new factory building is now under construction by the O. O. Storie Valve Company, Kewaunee, Wis., recently organized with a capital stock of \$150,000. It is the purpose of the company to equip the plant with modern machinery suitable for manufacturing the Storie gate valve, which will constitute the product of the company.

Illustrative of the strong condition of industrial affairs in the Southwest and an unarrested development of business in that section is the plans of the Oklahoma City Steel & Iron Works, Oklahoma City, Okla., which has recently been incorporated with a capital of \$10,000. This company is arranging to erect a fabricating plant, which will be located in the south town, near the 'Frisco yards. The equipment to be purchased for the new works will include a Corliss engine and boilers, steam pump, air compressors and structural machinery. H. M. Little, 22 National Bank Building, Oklahoma City, has been elected president and general manager. Among the incorporators are H. F. Mitchell and Lewis Althoff of Kansas City.

Sealed proposals will be received at the office of the United States Reclamation Service, 877 Federal Building, Chicago, until 2 o'clock p.m., November 15, for five engines, designed for use in connection with the central irrigation projects now under way in the West. The requirements include five heat engines in all, which are specified as follows: One 100-hp. engine for distillate fuel; one 15-hp. engine, using gasoline for fuel; one 125-hp. engine, using distillate for fuel; two 50-hp. engines, using distillate or producer gas. Bids on the latter two engines are to be alternate on the different classes of fuel. The first three engines listed are to be of vertical multi-cylinder type, in which the large ones shall have not less than three cylinders, and the smaller not less than two mounted on heavy cast iron bed plates. The two 50-hp. engines may be either single or double cylinders, equipped with heavy flywheel, designed to drive a heavy load at slow speed with long belt transmission. Early delivery is required for the two 50 hp. engines, while on the three larger engines delivery within four months will be accepted. Detailed specifications can be had upon application to E. T. Perkins, engineer in charge, 877 Federal Building, Chicago.

Hill, Clarke & Co., Chicago, have improved their Chicago warehouses and offices in a way that adds greatly to the general attractiveness of the premises and to convenience and facilities for handling the machinery stock. New hardwood floors have been laid on the main floor, and the walls and ceiling of this room have been finished in white throughout, greatly improving the light for tool display. A new 12-ft. elevator has been installed of sufficient capacity to carry the heaviest machines, and the shops on the upper floor and the demonstrating department have been enlarged and rearranged.

The National Business League of America is planning to hold an important meeting and banquet at the Auditorium Annex, Chicago, on Saturday evening, November 23. It is expected that there will be present on this occasion men prominent in commercial and industrial affairs from all over the country. Among the speakers who will deliver after dinner addresses are Leslie M. Shaw, former Secretary United States Treasury, who will speak on Banking; George R. Peck, to whom the subject, "The Iron Horse," has been assigned, will discuss railroad problems; Hugh J. McGowan, Indianapolis, Ind., will talk on Interurban Railroads; Col. Robert J. Lowery, Atlanta, Ga., will speak on the Cotton Industry, and W. Irving Babcock, naval architect, New York, has for his subject, "Ship Building." It will be the purpose in these discussions to outline the developments that have taken place in the several industries under review, and to show their inter-relations with each other and with commerce and the people.

McDowell, Stocker & Co. have removed to their new building, 16, 18 and 20 South Jefferson street.

Cleveland Machinery Market.

CLEVELAND, OHIO, November 4, 1907.

Business is almost at a standstill in the local machinery and machine tool market as a result of the financial disturbance throughout the country. The action of the local banks in curtailing loans and in enforcing the 60-day clause in the payment of savings accounts has made the money market tighter, and the financial stringency, together with the uncertainty as to future conditions, has practically put a stop to all buying orders. Dealers are pursuing a cautious policy, and are not making great efforts to land orders until the financial storm blows over. Conditions of the past two weeks have caused a considerable increase in cancellation

of orders, as was expected. Storerooms of dealers are now well stocked with tools, except milling machines, and when the demand is resumed there will be no trouble in securing prompt deliveries. There are still quite a few fairly good inquiries coming in from industrial concerns that need new tools, and dealers are hopeful of a fair volume of business when the financial situation improves.

Local tool manufacturers are pretty well caught up on deliveries and are getting some new orders, but with a decreasing amount of work on their books there is an increasing anxiety about the future. Some orders for large single tools are being placed by railroads for additional shop equipment, planned before the retrenchment policy was adopted. Tool builders doing a foreign business report that orders from abroad are coming in in fairly good shape, and these orders are greatly appreciated at the present time. Builders of mining machinery report a fair volume of inquiries, but the prospective purchasers are not expected to close their orders until the financial disturbance is over. The present condition of affairs has caused collections to become worse, and the difficulty in making collections is being seriously felt, particularly by the larger industrial concerns. In spite of the present unfavorable conditions few if any local industrial plants have as yet adopted a policy of retrenchment, the orders on hand permitting them to keep their plants running for the present at full capacity. The general feeling among manufacturers is that trade conditions will soon show considerable improvement, and that a fair volume of business will develop before the end of the year.

The Wellman-Seaver-Morgan Company has just received an order for a Hulett 10-ton ore unloader, to be erected for M. A. Hanna & Co., on the Pennsylvania docks at Erie, Pa., and to be ready for operation May 1, 1908. The company has also recently received an order for ten special electric coal cars of 60 tons capacity each, with air operated dumping arrangement, for the new Sewals Point terminal of the Virginian Railroad, to be used in connection with a Hulett unloader that the company is erecting for that railroad. The company reports that many inquiries are coming in for mining machinery, but that owing to the present financial situation mining companies are holding back on placing orders for new equipment. While orders in the various departments have fallen off considerably it has enough work on hand to keep the entire plant in operation for some time.

The Cleveland Punch & Shear Works Company has just completed a large addition to its plant on St. Clair avenue. The new structure is 80 x 156 ft., two stories high, of brick, iron and cement construction. Handsome offices will be fitted up on both floors at the front of the building. The first floor will be used for the shipping, tempering and grinding room for the punch and die department. Under the first floor is a cistern of 1000 bbl. capacity, connected with the tempering vats. This will contain the tempering solution. A 15-ton crane, manufactured by the Cleveland Crane & Car Company, has been installed on the first floor for handling castings. The second floor will be used for the punch and die department. On this floor is a 2 15-16-in. line shaft directly connected with two 40-hp. motors. The old plant will be used for the machinery department. The present office building will be used to provide more room for the power equipment. The equipment will be increased by the addition of one 325-hp. water tube boiler and a 75-kw. Westinghouse generator. The company has become greatly crowded in its old plant, and the present addition gives it plenty of room, owing to the growth of the business, and a thoroughly up to date establishment. The company reports that while its orders have fallen off, it has had no cancellations and that it has enough work on hand now to keep the plant in full operation until February.

The Cleveland Wrought Washer Company, which was organized a few months ago by J. G. Betcher and others, who had been connected with the Betcher Mfg. Company, manufacturer of washers, has about completed a new plant on West Fifty-eighth street, for the manufacture of washers, and will begin operations in a few days. The plant is 40 x 185 ft., two stories high.

The Parr Regrinding Valve Company, Cleveland, which was recently organized with a capital stock of \$10,000, to manufacture regrinding valves, has elected the following officers: W. S. Parr, president; C. A. Mattoon, vice-president; C. F. Haas, secretary and treasurer. The above, with W. J. Boardman, comprise the Board of Directors.

The Lincoln Electric Company reports a very good demand for motors and dynamos, and is having difficulty in keeping up with its orders. To accommodate its growing business the company is erecting a new plant at Kelley avenue and East Thirty-eighth street, which will be ready for occupancy about January 1. The building will be 50 x 150 ft., of concrete block construction, three stories high.

The Industrial Machinery & Supply Company, capitalized at \$10,000, has been incorporated by Sidney S. Smith, Charles E. Bull, F. B. Evarts, M. W. Croft and Ralph R. Snow. The company has opened headquarters at 1912 Prospect avenue, and will handle motors, gas engines, ice

machines, and other machinery. S. S. Smith is manager.

The American Steel Package Company, Defiance, Ohio, will soon begin the erection of a large addition to its plant to replace the part that was destroyed by fire a few weeks ago. The new building will be of brick, 73 x 277 ft., and one story high.

The Midgley Mfg. Company, Columbus, Ohio, has about completed an addition to its plant, which will largely increase the output. The company is installing some new drop hammers and other machinery.

Cincinnati Machinery Market.

CINCINNATI, OHIO, November 4, 1907.

Financial troubles in other sections and the proximity of elections combine to set machine tool manufacturers to thinking, but the combination has so far not interfered with the wheels of progress. Visits to the shop floors show machinery in all stages of erection, and the hum of the busy works is still as pronounced as it was months ago, notwithstanding the fact that the agency man is a little less in evidence than is his wont at this season of the year, and some of the large industries for which shop equipment is bound to be needed are holding off. The conservative tool builder in this field is not going to allow the prevailing decline in orders to bother him, but will go right ahead making tools for stock as soon as his order book is exhausted. It is argued that the splendid crops, the great things that are being done in all the leading commercial lines, and the generally healthy condition of the entire country will preclude the possibility of a complete collapse, and the recovery will be as marked and speedy as was the financial flurry of a few days ago. The manufacturer who then has stock ready for delivery is expected to reap the benefits.

In two establishments only have any men been laid off, and both of these only returned to normal conditions. Cancellations are extremely few, and the majority of these are to be interpreted merely as delays. The manufacturer who has an eye to the future sees in the extensions planned to great works, some nice tool requirements, and the fact that none of these has as yet been abandoned furnishes a note of encouragement.

As many as a half dozen of the larger tool manufacturing establishments are either in the process of enlarging or are arranging the specifications; another half dozen are figuring on plant extensions during next year. Distilling interests of Kentucky, because of inimical legislation, have quietly investigated with a view to moving their business into Ohio and the Cincinnati District. In the line of sewing machine manufacture there is a distinct movement toward early activity in this field.

The financial interests controlling the business of the Adjustable Automatic Sewing Machine Company, which has been manufacturing in a modest way for about eight months in Northside, has a large plant now in process of construction at Blue Rock and the Cincinnati, Hamilton & Dayton Railroad. The preliminaries have been carried out quietly, directed by Robert F. Taft of the firm of McMiller & Taft, contractors and builders of this city. The company will manufacture a sewing machine on an entirely different principle from those now in vogue. It will have a single thread automatic tension, which, it is claimed, can be marketed at about one-third the sale price of the present machines.

Another sewing machine industry, which will in all probability locate here, is that now being promoted by Jasper Van Nette of Tiffin, Ohio, who is here to talk with capitalists and arrange for the establishment of a plant to manufacture his patented bobbinless automatic machine, which also threatens to cut a deep gash in the existing market price of sewing machines.

Several advantages in construction and manufacturing are claimed for the new industry of the Merchants' Ice & Cold Storage Company, bids for the construction of which were to have been opened by this time at the office of Jarvis Hunt, architect, Chicago. The time has been extended upon the request of bidders until November 15. The plant is to be located at Freeman and Kenyon avenues and Barr street in the west end, and is to cost approximately \$400,000. The specifications include engines and boilers and ice making machinery, and are to be had of the architect in Chicago.

The Triumph Mfg. Company, builder of bakers' machinery exclusively, expects to be located in its new plant at Spring Grove and Sassafras streets, within the next month. It will treble its present capacity. C. H. Overkamp is president, August Tuechter vice-president and W. P. Tuechter secretary and treasurer. The new location will afford a floor space of 60 x 100 ft.

The Early Sun Stove Company is a new incorporation at Newark, Ohio. The incorporators are G. A. Wise, L. Dean, C. W. McAdam, E. J. Mathias and W. W. Maholm.

The Queen City Roofing Company is a recent Cincinnati incorporation for \$10,000 by Ralph C., Lewis E., Edith E., Emma E. and Fred L. Mirick.

The officers of the Provident Savings Bank & Trust Company have determined to postpone building operations, scheduled to begin at the corner of Seventh and Vine streets before the first of the year, until some time next year. The new home of the bank is promised to be one of the handsomest and most substantial tall buildings in the city. The officers believe the present an inauspicious time to build, expecting both labor and materials to be lower and more easily obtainable a little later on.

A new enterprise has been added to the thrifty Springfield, Ohio, manufacturing field in the form of the Springfield Acetylene Generator Company, just incorporated for \$100,000. I. W. Rodgers is president; Charles W. Holm, vice-president; Robert R. McGregor, treasurer; Charles H. Bancroft, secretary, and C. F. Smith, general manager. The new company will manufacture generators of the larger type suitable for the lighting of churches, schools, public buildings and residences. For the present it will occupy a portion of the building of the Patrie Furnace Company's plant on West Liberty street, but it will probably soon put up buildings of its own.

Eastern capital is said to be interested in the deal at Bucyrus, Ohio, which sees the absorption of the foundry department of the Shunk Plow Company by the Bucyrus Iron Works Company, a New Jersey corporation. It is stated that the new owners will build at once a large machine shop for the manufacture of hoisting engines, derricks and similar equipment.

Anticipating the meetings to be held November 7 in Cincinnati and Dayton by the foundrymen of this vicinity, it is learned that the Dayton meeting is set for 10 o'clock in the morning at the Phillips' House, which will give the Cincinnati foundrymen an opportunity to attend and be back in time for their own meeting, which is scheduled for 6.30 p.m. at the Grand Hotel. This will enable the local delegates to make a report to their fellow members on a topic that is agitating every member of the craft hereabouts just now—viz., the alleged excessive rate on pig iron from the Birmingham District, now \$3.25 to Cincinnati.

Philadelphia Machinery Market.

PHILADELPHIA, Pa., November 4, 1907.

The local machinery market the past week was without special feature. In some instances a fair volume of small orders developed, but generally speaking the outlook can hardly be said to be very encouraging. The financial situation has undoubtedly held up a large volume of miscellaneous business and has put a damper on new projects of any size. Capital is hard to interest, and those who have ready funds are inclined to hold them pretty tightly until the prevailing financial storms are allayed. The statement of the officials of some of the important Eastern railroads as to their policies for next year cannot be said to be very hopeful for the machinery trade, at least as far as railroad business is concerned. Curtailments and retrenchment policies are proposed in almost every direction, and while there will, no doubt, be some business come out, the aggregate volume is not expected to be large. Railroad as well as industrial plants will, no doubt, endeavor to operate their plants as economically as possible, and only such equipment as is absolutely necessary will be bought. While policies such as these mean a suspension of new business, they also point toward a larger volume of business to develop in the future, as soon as financial matters become settled, or, at least, when the usual uncertainties of a Presidential campaign are allayed by the nominations of candidates and the outlining of their policies, which should be fully developed along about the middle of next year. It is generally conceded that business in the machinery trades will be dull the coming winter, and the trade as a rule will be satisfied if enough business comes along to make both ends meet.

Manufacturers are catching up quite materially with the business in hand, and are getting a little bit anxious in some directions as to the future. In view of the declining prices in raw materials, tool builders are not inclined to make up extensive stocks, particularly when materials entering into their construction are being taken on old contracts at the higher range of prices.

Export business continues light and practically nothing has been done in usual standard machine tools. Special tools have been in somewhat better demand, and a few orders have been recently booked. The foreign demand for the smaller specialties continues fairly active, and while orders are being received in about the same number, the individual size is hardly as large.

A fair business continues to be done by second-hand machinery merchants. The tendency toward economy on the part of some buyers has turned a little more business in this direction, as buyers, particularly when some kinds of the smaller tools are needed, find second-hand tools will answer their purpose, and the cost is not as great as would be the case if new tools were taken. Even at that the aggregate volume of business is not large and is confined principally to that of a day-to-day character.

Boilers and engines are reported to be only in fair demand. Business under consideration develops rather slowly, and prospective purchasers seem to be inclined to await a general betterment of conditions before placing business of any moment.

The demand for castings, both iron and steel, continues rather quiet. While some few foundries are pretty well booked, the majority are rather short on orders for the future. Most of the business placed is for immediate delivery, as consumers are not inclined to place business very extensively on a declining market for raw materials. Some foundries are searching for orders aggressively, but even concessions in prices seem to fail to bring out much business. Deliveries on castings of nearly all kinds show quite a material improvement.

Proposals for a 6,000,000-gal. pumping engine for the Belmont Pumping Station of the Bureau of Filtration of this city were opened by the director on the 4th inst. The bids which were ordered scheduled were reported as follows: Snow Steam Pumping Works, \$39,000, to be completed in 270 days; Laidlaw-Dunn-Gordon Company, \$36,500, 270 days; Bethlehem Steel Company, \$39,750, 260 days; Allis-Chalmers Company, \$32,970, 240 days; Southwark Foundry Machine Company, \$44,385, 175 days. This department also opened bids for laterals on the north and south streets in connection with the high pressure fire main system, particulars regarding which have not yet been announced.

Lynch Brothers, engineers and contractors, are estimating on plans for a two-story brick factory and warehouse to be erected at Collingswood, N. J., for the Enterprise Wall Paper Company. The building will measure 60 x 276 ft., and have a wing 20 x 40 ft. On the first floor there will be a stockroom and engine and boiler room, while a machine and color room, as well as the general manufacturing department will be located on the second floor.

The Director of Public Works, City of Philadelphia, has awarded the contract for a new double bridge over Frankford Creek, at Wyoming avenue, to Richard Walsh, 5922 Tacony street, this city, for \$102,000. The contract for the erection of a bridge over the Pennsylvania Railroad at Twelfth and Clearfield streets, has not yet been awarded. The railroad will pay two-thirds of the cost of this bridge and the city the remainder.

The Washington Market Company, Washington, D. C., has under consideration the erection of a building and purchase of machinery and equipment for the manufacture of ice and for a cold storage plant. The proposed structure will be 150 x 300 ft., three stories. Frank G. Wilkins, Center Market, Seventh street and Pennsylvania avenue, is secretary of the company.

The American Pulley Company continues fairly active, although some little recession in business generally is to be noted. A good demand continues from the Pacific Coast, while some little diminution is to be noticed from the New England and Southern States. Foreign business continues fairly active, and although orders are as numerous as ever, they are not as large individually. Shipments for export recently include orders for delivery in Australia, New Zealand, England and Continental Europe, large shipments being recently made to parties in Germany. Except for the Pacific Coast, recent domestic deliveries have hardly been up to the average.

The Standard Pressed Steel Company reports an increased volume of business during the month just closed, when compared with the same month last year. The demand for pressed steel shaft hangers has been good, both from foreign and domestic customers. All departments of this company's plant continue busy and shipments during the month have been quite heavy. Recent export shipments include deliveries to Australia, Melbourne, Paris, and Stockholm, Sweden, several hundred hangers having been shipped to the latter place on one order. There has also been a good demand for countershaft hangers for machine tool work and a number have been shipped to parties in Canada. Domestic deliveries have been extensive in New England and the Middle West, with some fairly good shipments to the Pacific Coast.

J. B. Whitehead has been appointed purchasing agent of the Lehigh & New England Railroad Company, with offices at 108 South Fourth street, Philadelphia, Pa.

The Ball Engine Company, Erie, Pa., has opened a sales office at 1001 Arcade Building, Philadelphia, Pa., under the management of H. P. Penfield, for the sale of its automatic and Corliss engines, that the company may be better able to handle the growing demand for these types of engines.

New England Machinery Market.

WORCESTER, MASS., November 4, 1907.

Taken as a whole, the aspect of the machinery market is a little brighter than it was a week ago. Dealers report a desultory demand for machine tools, totaling quite a considerable figure, but small enough compared with similar periods so recent as to be still fresh in memory. Comparison is playing an important part in the factors that go to make up estimates of the present demand. While it never would have been considered satisfactory, excepting in times of exceeding dullness, yet it is better than is generally given credit. According to one estimate, it is within the average of the last five years, or, at any rate, close to it. Totals for October were really not so low as one would suppose from the talk among the dealers, even by comparison with a year ago, although, of course, the total is not so large. The past week was better than that preceding it with all the dealers. The holding back of contemplated orders continues, but there is no general disposition to abandon plans made months ago, and never culminated, for increasing or improving equipment.

Men are being laid off in considerable numbers, but usually it is the lower grade of help that is affected. Skilled workmen out of employment are by no means very numerous. Certain works are taking advantage of the opportunity to pick up first rate men, whom it has been nearly impossible to get for months past. The market rate for labor is already falling. Good men are willing to accept lower wages than they were asking. It is quite probable that when men who are now being released are hired back again it will not be at the old wage figure. This would be only natural, for wages decline with a falling market, and they have reached a top level during the recent great prosperity.

The mill supply business has not felt the depression nearly so much as the machinery trade. This was to be expected, of course, yet it is an indication that manufacturing business is still running on at a considerable pressure in certain lines, and that there is still quite a good deal going on in other lines. Some of the supply people report that their October totals did not fall below those of 1906, which they consider to be quite surprising. October of last year was a big one, and it may be stated here that it was an especially large one in the machinery trade, making the comparison with this year's business all the more striking and consequently creating the greater tendency to exaggerate the present falling off of orders.

The textile machinery works are not so busy as they have been, and it is reported that they are laying off men.

The Hoag Rapid Press Company, Hartford, Conn., announces that it has purchased a tract of land in that city, on Hamilton street near Bartholomew avenue, and will erect works on the site next spring. The building, which has already been alluded to in this column, will be of reinforced concrete, 60 x 150 ft., three stories, with an ell at the rear. The company will manufacture a new type of printing press that has been developed at the shops of L. E. Rhodes, Hartford, where are the present headquarters of the business. The press is already being manufactured on a commercial scale.

The reorganization of the Hartford Foundry Corporation, Hartford, Conn., manufacturer of gray iron castings, which has been in progress for some time, is now completed, and the company is in a position to do a more extensive business than before the receivership. The capital has been increased, to generally increase facilities for conducting the business, and plans are under way for material enlargements of the plant. These include the erection of a building outside of the present foundry for corerom, carpenter shop and power house, adding the room now being used for these purposes to the foundry floor and to pattern storage space. A new machine shop is also contemplated. Plans for this department are now being prepared, but it has not been decided how soon the work will begin. Charles E. Dustin, who was the receiver of the corporation from December 13, 1905, to June 1, 1907, and to whom the success of the reorganization is largely due, will take an active part in the management and has been elected president. Bertram J. Horton, Providence, R. I., the former president, is the new vice-president; Theodore M. Lincoln, treasurer, and J. G. Buckley, secretary.

The J. W. Lathrop Company, Mystic, Conn., manufacturer of gas and gasoline engines, is to build a brick addition to its plant, 78 x 122 ft., one story.

The receivers of the Grout Automobile Company, Orange, Mass., have petitioned the Superior Court of Massachusetts for the right to dispose of the plant to William L. Grout at private sale. It will be recalled that the receivership resulted from a disagreement among the owners of the business. If the court acts favorably upon the petition it is believed in the trade that the business will be resumed on the old basis of production.

The experiment has been successfully tried of bringing

Springfield and Chicopee, Mass., into water connection with tidewater for the transportation of coal and other bulky freights. The cities are situated on the Connecticut River, above a point where through navigation from tidewater excepting by small boats has not been considered feasible. It has now been demonstrated that boats of a carrying capacity of 250 tons can be operated successfully from Hartford, at which point transfer from barges will be made. The first boat built especially for the purpose is soon to make its maiden voyage. Two 80-hp. engines will operate paddle wheels. The boat will be equipped with suitable hoists for loading and unloading its cargo.

Government Purchases.

WASHINGTON, D. C., November 4, 1907.

The Isthmian Canal Commission will soon purchase six roller bearing geared ratchet screw jacks, one 16 in. by 8 ft. toolroom engine lathe, one portable riveter, four 250-gal duplex high duty water pumps, four pneumatic yoke riveters, four pneumatic jam riveters, three 2-hp. motors, &c.

The Bureau of Supplies and Accounts, Navy Department, will receive bids until December 3 for the following machine tools for the Puget Sound Navy Yard: One universal radial drill, two 32-in. upright drills, two 24-in. upright drills, two 14 in. by 12 ft. engine lathes, one 16-in. new model engine and toolroom lathe, two 18 in. by 8 ft. screw cutting engine lathes, two 36 in. by 24 ft. screw cutting engine lathes, two 24 in. by 18 ft. screw cutting engine lathes and two 18 in. by 12 ft. screw cutting engine lathes.

The following bids were opened October 29 for supplies for the navy yards:

Bidder 12, Brown Hoisting Machinery Company, New York; 17, Browning Engineering Company, Cleveland, Ohio; 25, Central Metal & Supply Company, Baltimore, Md.; 28, Chicago Pneumatic Tool Company, New York; 32, Cleveland Crane & Car Company, Wycliffe, Ohio; 36, Drew Machinery Agency, Manchester, N. H.; 37, Detrick & Harvey Machine Company, Baltimore, Md.; 39, Erie Foundry Equipment Company, Erie, Pa.; 41, Fairbanks Company, Philadelphia, Pa.; 42, Frye, Phipps & Co., Boston, Mass.; 43, Frevert Machinery Company, New York; 44, Fairbanks Company, Boston, Mass.; 46, Frick Company, Waynesboro, Pa.; 47, Richard W. Geldart, New York; 64, Ingersoll-Rand Company, New York; 65, Industrial Works, Bay City, Mich.; 66, Independent Pneumatic Tool Company, Chicago, Ill.; 74, E. F. Keating Company, New York; 75, Lincoln Motor Works, Cleveland, Ohio; 85, Manhattan Supply Company, New York; 87, Montgomery & Co., New York; 88, Motley, Green & Co., New York; 89, Manning, Maxwell & Moore, New York; 91, Morgan Engineering Company, Alliance, Ohio; 92, McMyler Engineering Company, Cleveland, Ohio; 95, Niles-Bement-Pond Company, New York; 102, Oliver Machinery Company, New York; 103, S. M. Price Machinery Company, Norfolk, Va.; 104, Prentiss Tool & Supply Company, New York; 110, Pratt & Whitney Company, Hartford, Conn.; 116, Joseph T. Ryerson, Chicago, Ill.; 117, Remington Machine Company, Wilmington, Del.; 121, Standard Railway Equipment Company, St. Louis, Mo.; 124, William Sellers & Co., Philadelphia, Pa.; 128, Smith-Courtney Company, Richmond, Va.; 131, Sherman-Brown-Clements Company, New York; 139, Vandeyck-Churchill Company, New York; 140, Vermilye & Power, New York; 141, Warner & Swasey Company, Cleveland, Ohio; 144, Williamson Bros. Company, Philadelphia, Pa.; 149, Excelsior Equipment Company, Pittsburgh, Pa.; 150, Knox & Bro., New York; 151, J. B. Roache, Brooklyn, N. Y.; 152, T. Arthur Woodhall, Boston, Mass.

Class 41. Two Universal turret lathes with side rests and bicycle chucks—Bidder 41, \$1360; 43, \$1718; 89, \$1278 and \$1040; 139, \$1210; 141, \$1388.

Class 42. One double disk and sand papering machine—Bidder 43, \$584; 102, \$569, \$500 and \$746.

Class 52. One 2500-lb. steam hammer—Bidder 36, \$2550; 39, \$2100; 88, \$2600; 89, \$2139; 91, \$2735; 95, \$2000; 104, \$2595; 116, \$2560; 124, \$2400 and \$2325; 128, \$2660; 149, \$2964.

Class 53. One automatic accelerated speed cutting-off machine—Bidder 89, \$465; 110, \$647.

Class 61. One new Chicago compression riveter—Bidder 29, \$425; 104, \$535; 139, \$493.50.

Class 62. One 4-spindle nut tapper—Bidder 36, \$459; 37, \$449; 89, \$450; 104, \$437; 139, \$425; 149, \$489.

Class 63. One motor drive outfit—Bidder 75, \$326, \$418.50 and \$521.50; 95, \$710.

Class 71. One locomotive crane, 10 tons capacity—Bidder 12, \$3615; 17, \$5075 and \$5300; 32, \$6000; 65, \$5195; 92, \$4998; 144, \$7925.

Class 72. One Wadkins mechanical wood worker—Bidder 102, \$2553.

Class 143. One pneumatic drill and one hammer—Bidder 29, \$87; 64, \$93; 66, \$89.90; 121, \$105.

Class 144. One valve reseating machine—Bidder 25, \$325; 36, \$325; 42, \$325; 43, \$325; 44, \$325; 47, \$325; 74, \$325; 85, \$325; 87, \$325; 89, \$325; 103, \$325; 131, \$325; 150, \$325; 151, \$325; 152, \$325.

Class 145. One valve reseating machine—Bidder 25, \$325; 36, \$325; 43, \$325; 47, \$325; 74, \$325; 85, \$325; 87, \$325; 89, \$325; 103, \$325; 131, \$325; 150, \$325; 151, \$325; 152, \$325.

Class 162. One ice making plant for the tropics—Bidder 28, \$3950; 46, \$4790; 88, \$5450 and \$5750; 117, \$4290; 140, \$5597.93; 149, \$7700.

The following bids were opened October 24 for supplies for the Isthmian Canal Commission, circular No. 398:

Bidder 3, Drew Machinery Agency, Manchester, N. H.; 4, A. D. Granger Company, New York; 6, General Electric Company, Schenectady, N. Y.; 9, Motley, Green & Co., New York; 14, B. F. Sturtevant Company, Hyde Park, Mass.; 15, Western Electric Company, New York; 16, Westinghouse Electric & Mfg. Company, Baltimore, Md.

Class 4. One belt driven magnetic separator—Bidder 3, \$196, 30 days.

Class 5. One direct connected engine and dynamo and two armatures—Bidder 4, \$895, 120 days; 6, \$634.62, 70 days; 9, \$1140, 60 days; 14, \$937, 45 days; 15, \$673.50, 150 days; 16, \$712.85, 120 days, and \$640.85, 45 days.

Under opening of August 30, circular No. 385, for 12 locomotives, the Davenport Locomotive Works, Davenport, Iowa, has been awarded four locomotives at \$12,652. The remaining eight locomotives will probably be readvertised.

The Marion Steam Shovel Company, Marion, Ohio, has been awarded class 1, 12 steam shovels at the unit price of \$13,180, under opening September 25, circular No. 388, for supplies for the Isthmian Canal Commission.

The Gardner Governor Company, Quincy, Ill., has been awarded class 2, two water pumps, \$1295, and class 3, one fire pump, \$720, under opening of October 21, circular No. 393, for supplies for the Isthmian Canal Commission.

The following awards have been made for supplies for the navy yards, bids for which were opened October 22:

P. H. & F. M. Roots, New York, class 1, one motor driven rotary blower, \$2065.

National Electric Supply Company, Washington, D. C., class 53, three rotary force pumps, \$108.75.

The following awards have been made for supplies for the Isthmian Canal Commission, circular No. 386, bids for which were opened September 3:

Industrial Works, Bay City, Mich., class 28, two locomotive coaling cranes, \$13,970.

Brown Hoisting Machinery Company, New York, class 29, two 20-ton locomotive coaling cranes, \$18,420.

A. D. Granger Company, New York, class 32, one 128-hp. vertical boiler, \$1298.

Motley, Green & Co., New York, class 33, one 8-ton tandem steam roller, \$2500.

The following awards have been made for machinery for the navy yards, bids for which were opened October 15:

E. W. Bliss Company, Brooklyn, N. Y., class 31, one power press, \$768.

Rockwell Engineering Company, New York, class 91, one furnace for melting scrap, \$1050.

Niles-Bement-Pond Company, New York, class 92, one planing mill, \$17,475; class 136, one 24-in. screw cutting engine lathe, \$1232; class 137, one 18-in. screw cutting engine lathe, \$744.

Brown & Sharpe Mfg. Company, Providence, R. I., class 93, two universal milling machines, \$2589.20.

Vandyck-Churchill Company, New York, class 123, one single punching and shearing machine, \$3788.

American Woodworking Machinery Company, Rochester, N. Y., class 131, one combined scroll and resaw, \$1025; class 132, one scroll sawing machine, \$420.

Frevort Machinery Company, New York, class 135, one vertical drill press, \$194; class 138, one bolt heading, upsetting and forging machine, \$2298.

Oliver Machinery Company, New York, class 133, one 30-in. hand planer and jointer, \$795.

Fairbanks Company, New York, class 151, one 16-in. screw cutting lathe, \$978.

General Electric Company, Schenectady, N. Y., class 211, 19 induction motors, \$2165.85.

The Lackawanna Steel Company has closed down its five furnaces in the Lebanon Valley, Pa., as well as the by-product coke oven plant at Lebanon. The necessity for restricting production presenting itself the company decided to shut down these Pennsylvania furnaces, since pig iron required to be hauled from them to the steel plant at Buffalo. Some reduction of capacity has been made at Buffalo also, the Nos. 4 and 5 furnaces having been put out of blast in October.

The Wheeling Corrugating Company, manufacturer of stamped metal ceilings, corrugated conductor pipe, galvanized and black sheets, &c., has removed its Buffalo branch warehouse and office to 44 and 46 Pearl street, where it will have convenient quarters for storage of stock and for offices.

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HARDWARE

MANUFACTURERS of Hardware and metal goods, as well as those in other branches of business, are naturally looking forward with interest to the approaching conference between Oscar S. Straus, Secretary of the Department of Commerce and Labor, and representatives of chambers of commerce and boards of trade in the United States, to be held in Washington December 5, having for its object the systematic extension of the foreign trade of this country. From this interchange of views the Secretary expects there will be adopted, both by the government and the commercial bodies, a definite plan through which to reach more aggressively and successfully the markets of the world. It is exceedingly gratifying that in this important trade matter manufacturers and merchants are to have the intelligent and helpful assistance of a cabinet officer, himself, during all of his business life, prominent as manufacturer and merchant.

While our exports in the aggregate exceed those of any other nation the proportion of manufactures, although rapidly increasing, is still comparatively small, amounting for the nine months ending with September, 1907, to about \$575,000,000, in a total of \$1,331,624,069. When, however, our recent entrance on a manufacturing career in competition with England and other countries of the Old World is remembered, this exhibit is creditable and full of promise. This is especially the case in view of the fact that heretofore the marketing of our manufactured products abroad has been accomplished in a desultory way and without the vigor and effectiveness possible with matured and comprehensive plans, formulated and executed by Government officials.

The sale abroad of Hardware and its related lines presents certain difficulties which are not experienced in exporting the great staples and the cruder products. The Hardware field contains such a multitude of articles, widely different in their construction, price and use, that it is the work of years to acquire anything like a thorough knowledge of the business. It is, therefore, too much to expect that official representatives of the Government, either at home or abroad, shall be thoroughly and technically familiar with the goods. While there is no doubt that much may be done by the Government in stimulating and co-operating with efforts for the securing of foreign trade, it is obvious, so far as this movement concerns the minutiae of general Hardware and allied lines, that the main responsibility must rest upon the manufacturers and merchants themselves, who will need to be resourceful and energetic in utilizing to the best advantage existing facilities and the additional facilities which may be afforded by the Government. If foreign fields are thus worked patiently, persistently and skillfully there is very little reason to doubt that a substantial increase in our export trade may be expected. Certainly the coming conference may be looked forward to with interest as possibly marking the beginning of a new era in the cultivation of foreign business.

The importance to Hardware merchants of the Christmas trade has frequently been referred to in these columns. It is encouraging to note that greater enterprise is shown each year by the rank and file of retailers in

cultivating this important source of profit. One of the evidences of the tendency is shown by the special catalogues of Sporting and Holiday Goods which are now forthcoming from Hardware jobbing houses, issued of course in response to a demand from the trade. Almost without exception retail merchants who have made intelligent exertions to expand their holiday business report that results have been highly satisfactory, justifying still greater efforts in this direction. Several different ways in which advantage results to the merchant may be enumerated as follows: Direct profit on goods sold for Christmas gifts; increased sales of regular goods to Christmas shoppers; new regular customers first attracted by holiday sales; development of women's trade; keeping clerks employed and the store busy during a period when general trade is usually dull; the advertising efficiency of a holiday campaign. In another column we refer to some of the methods employed with marked success by a well-known New England house in pushing and developing Christmas trade, being the first article of a series on the subject which will appear in our pages.

Condition of Trade.

During the past week the financial situation has continued to be the principal subject of thought in commercial centers, and the effect of the disturbance in the metropolis has been felt far and wide. There has been therefore not a little interference with the regular course of trade, so far as large transactions are concerned, as conservatism has given place to caution, and purchasing has been deferred, awaiting developments in the financial field. While there is an unquestioned need of legislation to correct defects in our monetary system and to safeguard the finances of the country, there is fortunately now something of a clearing of the skies and an improvement in the situation which justifies the hope that the financial disturbance in its acute form is a thing of the past. It is indeed a very favorable element in the situation that in many sections remote from the great business centers trade is moving on in its wonted channels, and in some cases in scarcely diminished volume, and as justifying confidence in the future there is the abundant prosperity of the agricultural classes. Meanwhile, the jobbers, many of whom have ample stocks, continue to buy in moderate quantities, covering immediate needs. As a result, there are many small orders being placed which entail not a little additional trouble and expense on manufacturers. There is also much less complaint than was justified for a long time on account of delay in shipments. Prices continue as a general thing to show no marked change. Manufacturers are refraining from forcing goods on a somewhat reluctant market, especially as the cost of producing them does not as yet call for any reduction in price. The advance which has taken place in Copper has a good effect on the market as a whole, but lower costs in some articles in which this metal is an important element are gradually developing. In connection with the possibility of a somewhat lessened consumption of goods in this country the efforts which the Government is about to make for the expansion of foreign trade are peculiarly timely, and the approaching conference of commercial bodies with the Secretary of

Commerce and Labor should have the heartiest co-operation of the trade.

Chicago.

The results of October business have been even more satisfactory than was anticipated. Judging from the reports of principal jobbing Hardware houses the volume of business for the month was equal to that of the preceding month and not far short of the corresponding month of last year. The monetary situation seemed to have reached a crisis last week, when, for a few days, business was practically at a standstill owing to the extraordinary measures temporarily taken by the banks to prevent needless withdrawal of deposits by apprehensive depositors. Conditions in this respect have improved and, barring the development of further complications, now unforeseen, a speedy restoration of public confidence should prove effective in relieving the shortage of money, which is held to be the immediate cause of the present trouble. In spite of repressive influences that have seemed to be operating against the development of trade, sales records in Hardware lines show conclusively that business keeps up remarkably well. The same disinclination to buy other than stock replenishment from week to week, or month to month, that has heretofore been noticed, is still a characteristic feature of the present demand. Neither manufacturers nor jobbers are disposed to press for contract orders, since such efforts would, under the circumstances, necessarily result in needless demoralization of prices, without achieving the results sought. The feeling prevails that the latent purchasing power of the country, which in its basic sources is admittedly strong, will assert itself in a demand for goods when needed. Prices have not been appreciably disturbed by recent developments and, while here and there soft spots have appeared in the way of concessions offered for desirable orders, the general list holds reasonably firm. The upward turn in Copper, which carried the price of this metal up $1\frac{1}{2}$ to 2 cents above the low point, is reflected in greater firmness and corresponding improvement in Copper Sheets and other Copper Goods. Cast Iron Ware is beginning to feel the effects of a sharp decline in raw material, though this is not yet reflected in any marked degree in finished Hardware products. It cannot be said that Wire Nails are as uniformly firm as heretofore, but departures from regular price schedules are not of sufficient frequency to materially affect the market.

Portland, Oregon.

FAILING, HAINES & McCALMAN.—General business conditions in this section continue to be extremely good. Collections continue to be fairly easy, especially with those houses that have established a reputation for keeping them up closely.

The only cloud on our business sky the last month has been that on the 28th of October the Governor of this State proclaimed a legal holiday period of five days in order to close the banks. There were two reasons which led the clearing house of the city to ask this assistance. One was that of our stock of coin and currency a very large amount had been sent to some of our neighboring cities to help them through the stringency and had been replaced by Eastern credits. These Eastern credits, in the present condition of affairs, are not being honored by the shipment of gold to this section; therefore, the clearing house decided it was necessary to go onto clearing house certificates in order to prevent the further depletion of our stock of coin. The holiday was asked in order to help country banks throughout this section who depend upon Portland as their reserve point, to make arrangements to accommodate themselves to the changed conditions. The State of Washington, where the banks had been for some time on a clearing house certificate basis, followed the example of Oregon. Only one day of this legal holiday period was taken advantage of by the banks of this city, as on the 30th they opened up for business. Notwithstanding their preparation to handle business on a certificate basis, they are able to clear all local business in gold coin.

We have tried to make plain that the real reason

for this was the holding of the Portland and Oregon coin in New York in order to help the stock gamblers there out of their difficulties when the producing sections of the country, as this section, are needing the money for movement of their products.

This holiday, however, has not apparently had the slightest effect on business, aside from the inconvenience it caused by closing the banks for one day. Business continues good, and business men throughout this territory are apparently as confident of the continuance of prosperity as they were six months ago. It is hard to see from the local point of view how we can fail to have a continuance of the prosperity of the previous year for some time to come, as our crops are abundant and prices are good. There has been a slight overproduction in the lumber industry, and this, combined with the anticipated rise of rates for Eastern shipments, has caused a slight decrease in business with the lumbering sections. This, however, we believe is but temporary, as the demand for lumber must increase, and steps have been taken by the lumbering interests to reopen the Eastern trade. Some of the lumbermen contend that the rise of rates is a blessing in disguise, as it has put the lumber business in many respects on a firmer basis than heretofore.

Really the tightness of money in the East has not affected the producer and those dependent on him in the slightest degree, except, as we have said before, in inconveniencing him a trifle in the marketing of his products. As far as any local condition is concerned there is not the slightest cause for apprehension on the part of any business man. How Eastern conditions may affect us in the future it will be impossible to say, but we believe, and this we think is the belief of practically all the jobbers in this territory, that prosperity will continue undiminished for some time to come.

Cleveland.

THE W. BINGHAM COMPANY.—Trade conditions in this market at the present time are quite satisfactory. The farming community are prosperous; they have been and are now getting good prices for their produce, and seem to be buying freely from their home merchants.

Money matters are quiet. Our banks have always been very conservative, and are abundantly able to take care of all demands for money for legitimate purposes.

The recent advance in copper will have a tendency to check the decline in prices of many goods that had a strong leaning that way. Already the manufacturers are informing us that the prices they issued two weeks or a month ago are now void, and they are obliged to make quite an advance in the price of all lines of goods in which copper and brass enters. This is especially true of Copper Rivets and Burrs, Sheet Brass, Sheet Copper, Brass Wire, Copper Wire, Copper Tea and Coffee Pots and Tea Kettles; in fact, all classes of Hardware and Brass Fittings, Valves, &c., will be affected. So the trade should take advantage of this and not sacrifice what they have on hand.

Orders are coming to us for well assorted lots. Quite a number of orders for spring goods are being placed. Large quantities of Merchant Pipe and Fittings are being sold. Jobbers' stocks on these goods are in good shape, that is, well assorted; mills having caught up on some of their back orders they are only short a few sizes now.

October sales are larger than a year ago, and we anticipate a good healthy trade throughout November.

Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—We are certainly in this section of the country having a peculiar and very unusual business experience at this time. The demand for goods was never better at this season of the year, and our people were never better prepared to meet their obligations. Farmers, merchants, manufacturers and every one have led themselves to believe that they are in the midst of great prosperity, yet almost in a day every bank in this city has practically suspended payment, as they have done in every other city of the country, limiting the amount of checks which they will cash to \$50 per week for one depositor. This, of course, is

making it very inconvenient to carry on the business of the country. Some of our salesmen are writing us that they will have to lay up until conditions adjust themselves, as they can't get their expense checks cashed, and the railroads won't take checks in exchange for railroad fare. We are to-day shipping some of our traveling men by express currency with which to travel.

During the past six years we have heard a great many people say, "Let well enough alone. We want no change in the administration of national affairs." Will they continue to say it if these conditions last?

St. Louis.

NORVELL-SHAPLEIGH HARDWARE COMPANY.—Well, we are still doing business at the old stand in spite of the banks issuing clearing house certificates, in spite of the whole country going on a checking basis, and in spite of the fact that the banks in a large part of the South have taken a week's holiday and closed their doors. It seems to us if anything is calculated to frighten the ordinary merchant or farmer, action like this would certainly do it. Can a farmer be blamed under these conditions for "sitting tight" and hanging on to everything he has got? Can a retail merchant be censured for not buying any goods when he don't sell any, sitting in his store with his shelves full, nothing going out and bills coming due?

Of course, this condition cannot last long, as the country generally is so prosperous and crops so good that confidence no doubt will soon be restored and business move in a normal manner again. One can imagine what would have been the result if all this had taken place in a year when crops were poor, with wheat selling at 50 cents per bushel, corn at 25 cents and cotton at 6 cents.

Well, let's be cheerful in spite of it all. We sold more goods in October this year than we did in October a year ago, and business at the present writing is coming in very nicely. Collections have been somewhat checked temporarily, but the money is in the country and will be sent in as soon as matters ease up.

There are some very reassuring signs in the price of metal. The rise in the price of Copper will undoubtedly have a strengthening and reassuring effect on the whole situation.

There has been no reduction of any note in the price of manufactured Hardware, and we do not look for any general decline in the price of goods. Some few particular lines may be affected, but we believe prices will be quite steady in a general way. Everybody is going to do some business next spring, and we believe there will be quite a lot of business to be done. In order to prevent congestion it might be well for merchants to specify for spring goods to come in at the usual period of delivery rather than hold off and block up the manufacturers by everybody wanting goods at the same moment.

Louisville.

BELKNAP HARDWARE & MFG. COMPANY.—Events have precipitated themselves rapidly in the last fortnight. Such a crumbling to dust and ashes of our national financial structure was never seen, or, rather, felt, with such underlying conditions. The spirit of "sauve qui peut" seemed to take possession of everybody all at once, and the bankers were standing, metaphorically speaking, with loaded guns behind their doors even when their best customers came in. The scramble for currency has been almost amusing. Par points have been knocked off a State at a time by some of the largest banks, who take great pride in their facilities for collection, and in many cases nothing less than a check item would be taken, and some of those only for collection. The result of this has naturally been to shut off new enterprises altogether, and a man found himself happy who had nothing on hand, which brought in the architect's certificate at the end of the week. Money for the payroll was pretty much all that will be forthcoming in legal tender shape. Of course checks are floating around freely, and as long as they answer instead of national currency, well and good.

This is certainly the time which demands of us all to put our houses in order, or else prepare to yield to the unhappy sway of the god "Pan." Fortunately by the

time the tidal wave reached this part of the country we began to get better reports of what was doing in Mr. Morgan's office in New York. The willingness of that great center to let us have a little money to use in the provinces was reassuring, although we understood that the Government put money there without charge and we had to pay roundly for getting some of it. Through it all the people at large seem to have preserved their good humor, and a little allowance has been made here and there for delays and difficulties. It ought to result in some national legislation to protect us against a repetition of this state of affairs. We have the assets of the best sort—cotton, corn, hay, oats and live stock. We hardly feel as though we could "go broke" while these are sight in abundance for our needs.

It looks as though it might be a slow process to build up again. It is like cleaning up the debris after a fire. The ashes have to be carefully raked over before you know exactly what is underneath. Then we begin to mount slowly from the bottom to reconstruct.

There has been no evidence of weakness in prices. The volume of business has kept up marvelously, and there has been absolutely no pressure to push the goods on the market, at least in manufactured form. Possibly these things will come to pass after a while, in which case little harm will be done, as we can speedily adjust ourselves to almost any conditions if they only appear reasonably permanent.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—Business since our last letter to *The Iron Age* has continued practically the same, showing that the demands and requirements of the consumers and retail merchants have not receded, as was feared when the "Wall Street excitement" opened. Indeed, members of the wholesale trade in this section, outside of the Hardware line, have reported that business has not in the least contracted, some referring to October trade as a record breaker, and the requirements for goods at present are said to continue equal to the same time in 1906.

Conditions in our agricultural sections were never of greater advantage to our entire country than for the past two years, and especially is this true of 1907. Only a few years since mortgages extended largely over many of the agricultural districts. These have now to a great extent been liquidated, and the size of farms in many places has largely increased within the last two years. A recent extract from a report reads as follows: "What is believed to be the largest check ever paid to any one wheat grower in the Northwest has just been received by a Pendleton farmer for the season's crop, raised on about 3000 acres of Umatilla wheat land. The check was for \$70,842.70."

Persons not familiar with what are known as the large agricultural districts of our country, as well as the cotton crop sections, have but comparatively little knowledge of the flourishing conditions which prevail this year and may not know of the improved financial conditions. Not being familiar with these they naturally would look upon the developments characterizing the overspeculation which caused the unfortunate crisis usually called in the papers the "Wall Street Crisis" as something that might possibly extend over the entire country, inasmuch as many innocent buyers throughout the country have suffered great distress, losing anywhere from a small portion to a large portion and in some cases almost their entire savings.

Now those who have read of the failures throughout our country exactly 50 years ago, which from one bank failure extended over the entire country, will fully realize how fortunate it is for the inhabitants of our country at large that the control of our Government over the national banks may have prevented a crisis similar to the one referred to; and we feel that what are known as trust companies should also be subject to the same examination by the Government that the national banks are.

We are all glad to hear of the improved conditions that now exist, which will be not only of advantage financially, but also to the trade and the country at large.

NOTES ON PRICES.

Wire Nails.—The disturbed conditions in financial affairs have, as yet, had little effect upon the demand for Wire Nails from the mills. New demand is large and shipments on contract account are heavy. Mills of the largest interest have comparatively light stocks at distributing points. It is reported that prices are being firmly maintained. Quotations on base sizes are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers.....	\$2.05
Carload lots, to retail merchants.....	2.10

New York.—Business with Nail houses for small lots at store is reported as having been as large during the month of October as for the same period last year. With a continuance of open weather a fair demand is anticipated during the present month. Some merchants are referred to as now buying Nails by the carload from the mills, but depending upon jobbers' stocks for their supplies in small lots. Local jobbers and Nail houses are holding small lots at store at \$2.35, base, and in general this price is fairly well maintained.

Pittsburgh.—The Wire Nail trade is the one bright spot on the Steel horizon, new demand being urgent and prices being firmly maintained. Reports from farming sections in the West are that the money stringency in the East is not being felt in the Western country, but work is going ahead as usual and money is plentiful. Shipments against contracts by the mills are heavy and the Wire Nail trade, from every point of view, is regarded by the manufacturers as being extremely satisfactory. The mills have enough business on their books to take their output for several months ahead, and we are advised there have been very few cancellations of contracts. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers.....	\$2.05
Carload lots, to retail merchants.....	2.10

Cut Nails.—Existing prices were reaffirmed by the Cut Nail Association at a meeting held last week. The demand on mills in the way of new business during the month of October was light. Under limited demand prices are irregular, and, according to reports, Steel Cut Nails are being offered on the basis of \$2 to \$2.05, f.o.b. Pittsburgh, for carload lots, and at \$2.10 for small lots, to which freight to destination is added. Iron Cut Nails are being held at about \$2.15, base, at mill.

New York.—There is a comparatively light demand in the local market for Cut Nails. Quotations for small lots at store range from \$2.30 to \$2.35, base, the former price being more or less general.

Pittsburgh.—New business is very light, buyers placing orders only for small lots that are actually needed. Prices on Cut Nails are being materially shaded by some mills that are urgently seeking orders. We are advised that Iron Cut Nails are quite firm, prices being well maintained. We quote Steel Cut Nails at \$2 to \$2.05, f.o.b. Pittsburgh, for carload lots, and small lots at \$2.10, to which freight to destination is added. Iron Cut Nails are being held at about \$2.15, at mill.

Barb Wire.—Filling specifications on contract orders makes up the bulk of the business being done by mills, as new demand is light. The market is reported as being firm. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Falnted.	Gal.
Jobbers, carload lots.....	\$2.20	\$2.50
Retailers, carload lots.....	2.25	2.55
Retailers, less than carload lots.....	2.35	2.65

Pittsburgh.—New demand is light, but specifications against contracts make up most of the business that is being done by the mills. The market is firm, and it is stated prices are being absolutely maintained. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Falnted.	Gal.
Jobbers, carload lots.....	\$2.20	\$2.50
Retailers, carload lots.....	2.25	2.55
Retailers, less than carload lots.....	2.35	2.65

Smooth Fence Wire.—The demand continues active, taxing the capacity of the mills to make prompt shipments. Prices are said to be firmly maintained. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. for cash in 10 days:

Jobbers, carloads.....	\$1.90
Retailers, carloads.....	1.95

Pittsburgh.—Demand for Fence Wire continues abnormally heavy and takes the output of the mills as fast as it can be shipped. The leading makers of Fence Wire are behind in shipments in spite of the fact that output is as heavy as at any time this year. We are advised that prices are being absolutely maintained. Quotations for base numbers 6 to 9 are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads.....	\$1.90
Retailers, carloads.....	1.95

Rope.—Nothing has occurred in the market to justify a change in merchants' policy of buying in smaller quantities and more frequently to keep stocks as light as is compatible with supplying current demand, while Fiber continues low in price. This throws the burden of carrying stocks to a large extent on the manufacturers, from which merchants draw according to requirements. Orders, while for small quantities of Cordage are insistent upon prompt shipment. Manufacturers recognize the fact that low priced raw material has caused a shrinkage in demand for Cordage during the past few months, and this condition is felt to a greater extent by those who have enlarged the productive capacity of their plants during the past year. The market is somewhat irregular at the following prices: Pure Manila, 11½ to 12½ cents; B quality grades down to 9 to 9½ cents; Pure Sisal, 9 cents; lower grades Sisal, 7¼ to 7½ cents; No. 1 Jute, ¼ in. and up, 8 to 8½ cents; No. 2 Jute, 7½ to 8 cents.

Copper Products.—The advance in Copper and related materials is still maintained, and stocks show some evidence of depletion, but there seems to be little confidence in further advance, rather a hope that the recent gain may be retained. The advance in bare Copper Wire in quantities is equivalent to about 2¼ cents from the low price of 14 cents per pound. Copper Sheets are firmer at approximately 18 cents and above, the agreed base still being kept at 20 cents. Buying is apparently to supply actual requirements, and is in no sense speculative. In Brass materials no changes of importance are observable.

Ludlow-Saylor Wire Company.—Ludlow-Saylor Wire Company, St. Louis, Mo., advises us that the arrangement made with the American Sales Company, Chicago, for marketing a portion of its product applies only to its output of Window Screen Cloth. The company is a manufacturer of all grades of Wire Cloth, and makes this statement to correct a possible misunderstanding of its relations with the selling organization.

Copper Bottom Wash Boilers.—A reduction in quotations on Copper Bottom Wash Boilers, Tea Kettles, &c., amounting to about 5 per cent. has been made by leading Tinware manufacturers. In a general way, however, it may be stated that the market on this and allied lines has steadied considerably as a result of the upward reaction in Copper.

Window Glass.—One thousand six hundred pots are reported as having been represented at the Columbus meeting of Window Glass manufacturers, on October 31, and that up to eight o'clock that evening manufacturers representing 1000 pots had pledged themselves to support a sliding scale, which had been adopted, or to let their plants stand idle. The meeting was continued to the following day to accommodate some manufacturers who were not in attendance on Thursday. It is understood that manufacturers, who signed the agreement, now operating factories will give the workmen the usual seven days' notice, and if the men are unwilling to work under the new scale, the factories will be closed indefinitely. Some factories which are in operation, the workmen in which are supposed to be working under secret agreement as to wages, have been offering Glass at very low figures. The outcome of these various market con-

ditions will be awaited with interest by the trade. Demand is light, both from manufacturers and jobbers. Prices recommended by New York jobbers are as follows: Single strength 90 and 10 per cent. discount, double strength 90 and 20 per cent. discount. These discounts apply to purchases up to 50 boxes. Over 50 boxes the prices are 5 per cent. better. It is understood that Chicago jobbers are holding Glass at the following discounts: Single strength 90 and 15 per cent. discount; double strength 90 and 20 per cent. discount.

Spirits Turpentine.—The money stringency, election day and previous dullness have all conspired to keep the market down during the week under review. Demand is expected to show improvement under better conditions. New York quotations are as follows, according to quantity: Oil Barrels, 53 to 53½ cents; Machine Made Barrels, 53½ to 54 cents.

Linseed Oil.—The Duluth Exchange has been closed for about a week, consequently no reliable information regarding the seed market has been obtainable from that source. Crushers have become even more cautious than before, about accepting orders for deliveries over any extended periods. Buyers, on the other hand, are not generally inclined to purchase in carload lots, so that business at this point is confined, for the most part, to lots of 5 to 15 barrels. At this point Out of Town Raw, in five barrel lots, is quoted at 46 to 47 cents, and at 45 cents for carload lots. City Raw is quoted at 49 cents per gallon in any quantity.

CATALOGUE OF BLISH, MIZE & SILLIMAN HARDWARE COMPANY.

THE BLISH, MIZE & SILLIMAN HARDWARE COMPANY, Atchison, Kan., has issued a general Hardware catalogue of substantial get-up and imposing size. It consists of between 1600 and 1700 pages, inclosed in a heavy loose leaf binding. New leaves referring to additional goods and changes will be mailed to recipients of the catalogue at frequent intervals. The following general classifications are noted: Mechanics' Tools, Farm and Garden Tools, Locks and Builders' Hardware, Miscellaneous Hardware, Harness and Saddlery Hardware, Household Furnishings, Tinware, Enameled Ware, &c., Tinner's Trimmings, Tools and Supplies, Cutlery, Flat Ware, Clocks, &c., and Sporting Goods. There are many pages of useful information, and in conclusion an extensive approximate price-list, which will furnish a useful guide to buyers and which it is stated will be revised as frequently as conditions require.

LALANCE & GROSJEAN MFG. COMPANY'S NEW CATALOGUE.

THE LALANCE & GROSJEAN MFG. COMPANY, 19-21 Cliff street, New York, has just issued an illustrated descriptive catalogue, containing 205 pages, of Enameled Kitchen and Household Utensils, which includes Agate Nickel-Steel Ware, El-An-Ge, Pearl-Agate, Blue and White, All-White, Regal Steel and Turquoise enameled wares. In contrast with an illustration of the company's original Woodhaven factory, in 1860, are page engravings of the immense plant now there, and the steel rolling mills at Harrisburg, Pa., together with Chicago and Boston warehouses. The large lines of galvanized, japanned and tin ware produced are shown in separate catalogues. The present revised list prices annul all previous lists.

"Rural Water Systems" is the title of a neat and effective booklet issued by the Deming Company, maker of pumping machinery, Salem, Ohio. The 12 pages of this booklet illustrate the usefulness of the Deming hydraulic ram in the country home and, although the main points are covered, it may easily be read through in 10 min. Inasmuch as conditions of installation differ, it is regarded as desirable to consider each case by itself and to offer suggestions bearing on that particular case. This method is likely to result more satisfactorily to the prospective purchaser than would a general set of rules applied to every case, regardless of conditions.

AMONG THE HARDWARE TRADE.

The interest of Andrew Miller in the Austin Hardware Company, Terre Haute, Ind., has been purchased by C. A. Hansing, Arthur Jobe, Edward J. Kadel, Nicholas Kadel and Victor E. Schuh. The company do a wholesale and retail business at 608-610 Wabash avenue. The officers are as follows: Christian A. Hansing, president; Victor E. Schuh, first vice-president; Nicholas Kadel, second vice-president; Edward J. Kadel, secretary, and Arthur Jobe, treasurer.

The business of the Hall Hardware Company, Unadilla, Neb., will hereafter be conducted in the name of William Hall.

Louis Robinson & Co., Cimarron, Kan., had their stock slightly damaged by fire, a short time since. The firm handles Shelf Hardware, Stoves, Agricultural Implements, Paints, Sporting Goods, Vehicles and Furniture.

F. E. Brooks, Bowesmont, N. D., has made arrangements to take over the business of R. J. French in Shakopee, Minn., about November 15. The lines carried include Shelf and Heavy Hardware, Stoves, Agricultural Implements, Paints and Sporting Goods.

The Hardware store formerly conducted by the late F. E. Newman, on Central avenue, Moxham, Johnstown, Pa., has been sold to the Moxham Hardware Company, of that city, and will be transferred to the store of the purchasers. The consideration was about \$14,000.

J. W. Kraft has bought the Stove and Tinware business of Nathcock Hardware Company, Harrison, Ark.

The business of the Hardware and roofing firm of L. & P. Panner, South Side, Pittsburgh, Pa., and Crafton, Pa., will be incorporated next month under the style of the Panner Hardware Company. The application for a charter will be made by P. H. Buckley, Philip Panner, D. J. Buckley and Henry Panner.

On account of the death of J. C. Weidemann, the firm of Weidemann & Bro., Philadelphia, has been dissolved. Henry A. Weidemann will continue the business at the same address.

The Olathe Hardware Company, Olathe, Colo., has been incorporated with a capital stock of \$20,000 by S. C. McNeil, T. Owens, W. F. Shields and F. R. Leaver. A retail business is carried on in Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Paints, Sporting Goods, Queensware and Furniture.

A. F. Bick, Lead, S. Dak., recently sustained a slight loss from fire. He handles a general line of Hardware, Stoves, Tinware, &c.

A. M. Kahn & Co. will open a store in Bolivar, Tenn., and will handle Shelf Hardware, Tinware, Sporting and Athletic Goods and Queensware.

The Union Mercantile Company has opened a stock in Knobel, Ark., including Shelf and Heavy Hardware, Stoves, Tinware and Agricultural Implements.

Leonard Hardware Company, Springfield, Mo., is to move into a handsome new store before January 1. New fixtures of the latest pattern are to be installed, the stock is to be increased and the firm will then be incorporated.

Ben Williamson Hardware Company, Catlettsburg, Ky., has formed a consolidation with Emmons-Hawkins Hardware Company, Huntington, W. Va. The stock of the former concern is being moved to Huntington, where the business will be conducted under the name of Emmons-Hawkins Hardware Company. The Williamson Hardware Company will succeed Ben Williamson Hardware Company at Catlettsburg.

BUYER'S STOCK RECORD.

IN the jobbing house of Roe & Conover, Newark, N. J., the methods of handling the business in all its branches are marked by studied economy of time and labor. Among the clever ideas observed there is a con-

A GUN MAN'S TIMELY ADVERTISEMENT.

THE cleverly arranged card reproduced herewith, showing the open and close seasons on fish and game in New Jersey, has just been issued by E. G. Koenig, Newark. Mr. Koenig is well known as an able and

		Knife Handle Coe Wrenches						
SIZE		6"	8"	10"	12"	15"	18"	21"
STOCK		1 doz	4 doz	4 doz	2 doz	1 doz	1 doz	1 doz
DATE	Jan 31-07	John H. Graham & Co		#14823				
WANTS		1 doz	1 doz	2 doz	6 doz	1 doz	1 doz	1 doz
STOCK		1 doz	4 doz	5 doz	5 doz	1 doz	1 doz	1 doz
DATE	Feb 28-07	J. H. B. & Co		#14111				
WANTS		2 doz	0	0	6 doz	0	0	1 doz
STOCK		2 doz	3 doz	5 doz	15 doz	1 doz	1 doz	1 doz
DATE	Mar 30-07	J. H. B. & Co		#14099				
WANTS		2 doz	0	0	0	1 doz	1 doz	0
STOCK		1 doz	0	0	6 doz	1 doz	1 doz	1 doz
DATE	May 31-07	J. H. B. & Co		#15979				
WANTS		2 doz	3 doz	4 doz	0	1 doz	0	0
STOCK								

DATE	
WANTS	
TOTAL	
SMALLEST QUANTITY Carried	
LARGEST QUANTITY Carried	
REMARKS	

Stock Record Sheet Used by Roe & Conover.

venient plan for keeping a record of stock for the buyer's guidance. This is done on sheets ruled and printed for the purpose, one of which is reproduced herewith. The sheets are approximately 10 1/4 x 12 inches in size and have on each side blanks for the records of twelve months or one year. At the top of the page is entered the name of the article, in this case a Coe's Knife Handle Wrench, under which is a line for listing sizes. On the line headed Stock is entered the quantity on hand and under Wants, the quantity needed to complete the stock properly. After the date is entered the name of the firm with whom the order is placed together with the order number. The total of the year's orders are footed at the bottom of the page where there is also space to enter the maximum and minimum carried at one time. Finally, a place is provided for remarks.

The Practice of the Firm

is to use both sides of the sheet for the same line, one side covering one year and the other the next. Thus the stock keeper and buyer have before them at a glance not only the records of preceding months of the year, but also the complete record of stock and purchases during the previous year, affording a valuable guide as to probable requirements.

The sheets are loose leaf and binders for containing them are distributed in the different departments of stock. This keeps the stock sheets as near as possible to the stock itself. They are brought before the buyer at regular intervals, once a week or once a month, &c., according to the activity of the line, or when called for.

The El Paso Hardware Company, El Paso, Texas, has been incorporated with a capital stock of \$5000. The officers are as follows: Henry Welsch, president; R. Fessinger, vice-president; W. F. Oatiz, treasurer and manager; F. J. Wilke, secretary. The company handles Shelf and Heavy Hardware, Stoves, Tinware, Paints and Oils.

Ernest Freese has purchased the retail business of Butler & Gaines, Adair, Iowa, and will carry a general line of Hardware.

enterprising merchant whose store is conducted on efficient up-to-date methods which command a large and growing trade of the most desirable character. He makes a specialty of Guns and Sportsmen's Supplies, so the card referred to is particularly good advertising for him at

E. G. KOENIG, Newark, N. J.												
1907 Open and Close Seasons in New Jersey 1907												
	Black—open season						White—close season					
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	
Fire Arms, Quail, Partridge, Game, English or Bay, Woodcock, Pheasant, & Gray, Black & Red, Sparrows												
Woodcock												
Gray, English or Wilson Snipe												
Rail Bird, Marsh Hen or Mud Hen and Red Bird												
Upland Plover												
Geese, Duck, Brant and Water Wild Fowl												
Brook Trout												
Croaker, Calico Bass, Black Bass, Pike Perch and White Bass												
Pike and Pickerel												
Shore Birds, Surf Sculpin or Bay Sculpin												

It is lawful at all times of the year to take for yellow perch, catfish, sunfish, eels and suckers as long as not more than three books are used.
Non-residents must take out license to gun—from county clerk; cost, \$10.50. Law does not apply to gunning for water wild fowl, snipe, marsh or mud hens.
It is unlawful to fish through holes in the ice for any kind of fish at any time.

Fish and Game Card.

the opening of the hunting season, being appreciated without doubt by the local sportsmen whose patronage he solicits. On the reverse side of the card is a summary of the fish and game laws, stating what is always unlawful and a more prominent advertisement of the business.

R. W. Van Payma has opened a Sporting and Athletic Goods store at 533 Main street, Kansas City, Kan.

The Postmaster-General's Rural Parcels Post Project.

FROM OUR SPECIAL CORRESPONDENT.

WASHINGTON, D. C., November 5, 1907.

THE big convention of the Hardwaremen at Atlantic City has been promptly followed by energetic action in opposition to Postmaster-General Meyer's parcels post propaganda and the methods he has adopted to bring it before the public. President Roosevelt has received a telegram signed jointly by T. James Fernley of the National Hardware Association and M. L. Corey of the National Retail Hardware Association, protesting vigorously against the Postmaster-General's action in causing his speeches to be printed at the Government Printing Office and sent broadcast over the country under the official frank of the Post Office Department and accompanied by other unofficial literature designed to promote the parcels post project. The Hardwaremen take the position that the Postmaster-General's addresses are unofficial and cannot be regarded as public documents.

Practically Identical with the Bristow Measure.

The proposition presented by the Postmaster-General in the alleged interest of the local retail merchant is practically identical with the bill drafted by the late Fourth Assistant Postmaster-General Bristow more than three years ago, and which has been pending during the past two Congresses without receiving a commendatory word from any representative of legitimate retailing interests. On the other hand, the Bristow proposition has been vigorously denounced on the ground that it would afford an enormous advantage to the mail order houses, which would be able to ship their catalogues in bulk by freight to agents at post office towns and distribute them over the rural routes as local packages. The present cost of sending a 4-lb. catalogue by mail is 32 cents. The cost for handling the same catalogue under the Bristow-Meyer rural parcels post plan would be 11 cents for postage and, perhaps, 3 cents for freight and agent's commission, or 14 cents; as compared with the present cost of 32 cents. In other words, the catalogue house would be enabled to save 56 per cent. on one of the heaviest items of expense which they are now obliged to incur in working up new business and keeping in touch with old customers.

Even More Objectionable.

But the rural parcels post project as set forth by the Postmaster-General is far more objectionable than the Bristow plan in the only feature in which it differs from it, for the reason that it is combined with a weight limit of 11 lb., while General Bristow proposed a 5-lb. limit. Under the present practice rural carriers are permitted to handle outside the mails any package weighing more than 4 lb., even if composed of a number of small packages tied up together, and the fee for this service is a matter of agreement between the patron ordering the goods and the carrier. It rarely exceeds 10 cents, and the service is usually performed gratuitously. Under Postmaster-General Meyer's plan the carriers would be forbidden to handle packages weighing 11 lb. or less and the postage thereon would have to be prepaid by the retail merchant.

A Single Illustration Will Show the Absolute Impracticability

of the proposed plan from the standpoint of the retail merchant. A farmer desiring to buy 10 lb. of Nails can now request the carrier to procure them, and if he pays for the service at all the cost will probably not exceed 5 cents; usually the fee is in the nature of a little fruit, a piece of cheese or a few oats for the carrier's horse, costing the farmer practically nothing. Under the Postmaster-General's plan 10 lb. of Nails, being mailable, could not be carried without the payment of full postage, amounting to 23 cents, which must be furnished by the merchant, who must either charge it to his customer or stand the loss himself.

Another highly important consideration is the fact that as carriers are now permitted to do errands only at

the request of the patrons of their routes, they are almost always entrusted with the money necessary to make a purchase, so that this business is now done on a cash basis. It goes without saying that the farmers "ordering small articles over the telephone," as suggested by the Postmaster-General, would expect the retailer to "charge" the purchase, to be paid for when the farmer should have a little spare cash not needed to make a purchase from a mail order house.

PRICE-LISTS, CIRCULARS, Etc.

Manufacturers in Hardware and related lines are requested to send us copies of catalogues, price-lists, &c., for our Catalogue Department in New York; and at the same time to call attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.

SKINNER CHUCK COMPANY, New Britain, Conn.; New York office, 94 Reade street: 1907 price-list of Chucks, Drill Press Vises, Face Plate Jaws, &c.

DIAMOND SAW & STAMPING WORKS, Buffalo, N. Y.: Catalogue No. 13, relating to Sterling Hack Saw Blades and Frames, Power Hack Saw Machines, &c.

KILBORN & BISHOP COMPANY, New Haven, Conn.: Catalogue No. 5, relating to Drop Forgings, Box Openers, Bridle Bits, Brick, Cape and Cold Chisels, Expansion Bits, Pliers, Nippers, &c.

WALTERSCHEID MACHINERY & SUPPLY COMPANY, Wichita, Kan.: Catalogue A, devoted to Pumps, Pump Fixtures, Brass Goods, Mill Supplies, &c.

NATIONAL CUTLEBY COMPANY, Detroit, Mich.: Illustrated price-list relating to Butcher, Steak, Skinning, Sticking, Kitchen, Cigar and Putty Knives; Cold, Cape, Railroad, Keyseating and Brick Chisels; Punches, Calking Tools, Claw Bars and Automobile Kit.

STURGES & BURN MFG. COMPANY, Harrison and Green streets, Chicago, Ill.: Illustrated booklet devoted to Milk Cans, Milk Stirrers, Cheese Factory Cans, Dairy and Strainer Pails, Milk Can Stock, Steel Churns, Ice Cream Packing Cans, Seamless Steel Cheese Hoops, Lard Skimmers and Dippers, Wrought Steel Spiders and Grid-dles, &c.

ALLEN & LOTS, 169 Summer street, Boston, Mass.: Catalogue No. 10, 100 pages, devoted to Cabinet Hardware, Brass Goods, &c., of which they are jobbers and retailers.

PHILADELPHIA LAWN MOWER COMPANY, 3101-3109 Chestnut street, Philadelphia, Pa.: Large 1908 catalogue and price-list, illustrating Hand and Horsepower Lawn Mowers, Grass Collectors, Horsepower Sweepers, Lawn Sprinklers, Horse Boots, &c.

EDWARDS MFG. COMPANY, Cincinnati, Ohio: Shingle booklet, illustrating and describing Metal Shingles, Metal Slate, Hip and Ridge Trimming, Valleys, Crestings, &c.

MASON & PARKER, Winchendon, Mass., branch of National Novelty Corporation, 826-828 Broadway, New York: Catalogue No. K-3, devoted to Juvenile Automobiles and Steel Toys.

CHARLES PARKER COMPANY, Meriden, Conn., and 32 Warren street, New York: Illustrated four-page circular, combining all its stationary and swivel Pipe Vises, with compact necessary data and three blank columns for insertion of discounts, net and selling prices, to facilitate selling.

The Marlin Firearms Company, New Haven, Conn., maker of Marlin Repeating Rifles, Shot Guns, &c., is distributing to the trade an attractive hanger, 14 x 24 in. in size. The design is the same as that used on the company's new catalogue cover, representing a hunting scene in natural colors. We are advised that applicants for the hanger should send stamps to cover postage.

Bryan & Blakey have opened in the Hardware business at Fayette, Mo. The firm handles Shelf Hardware, Stoves, Tinware, Agricultural Implements and Sporting Goods.

SHEET METAL BUILDING FRONTS.

AN interesting example of the use of sheet metal for the fronts of buildings is found in the new plant of the Edwards Mfg. Company, Cincinnati, Ohio, of which a view is presented in the accompanying illustration. The illustration shows the application of the Edwards rock face brick and stone siding, the Edwards galvanized iron



Sheet Metal Front of New Plant of the Edwards Mfg. Company.

cornice and pedament, pilasters, &c. The rock face brick and stone siding is made of sheet steel furnished either painted or galvanized. It can be applied by an ordinary workman over rough sheathing boards at about one-third the cost of brick, it is stated, the nails being driven into the mortar marks, and scarcely noticeable when applied. The single brick measures 2 1/2 x 8 1/4 in., and a single stone 7 x 12 in., with sheets in each case 28 x 60 in. A square of rock face brick or stone consists of eight 4-7 sheets 60 in. long by 28 in. wide. The claim is made that the material can be applied to a new or an old building with equal facility, making a fireproof construction, and reducing the cost of insurance. The shipping weight per 100 sq. ft. is 70 lb. painted and 80 lb. galvanized. The illustration shows the effects produced by the use, in combination, of the materials in question. The Edwards Company's plant is 200 x 287 ft., and is devoted to the manufacture of an extensive line of sheet metal building material.

THE UNION MFG. COMPANY, New Britain, Conn., has disposed of its entire pump business, including good will, patterns, tools, &c., to W. & B. Douglas, Middletown, Conn., and the manufacture and sale of pumps by the Union Company will be discontinued. Orders now on its books will be filled by W. & B. Douglas as promptly as possible. Settlement of invoices to the date of the circular announcing the change, October 23, should be made to the Union Mfg. Company. As all patterns, machinery and tools for the manufacture of Union pumps are now in the possession of W. & B. Douglas, pumps and repair parts will be supplied by them.

ROBERT H. INGERSOLL & BROTHER, 51-55 Maiden lane, New York, have issued an interesting pamphlet entitled "The Making of an Ingersoll Watch; Where and How It Is Done." Many views are presented of departments containing automatic machines, with operators at work; also of single machines. The use of automatic machinery and numerous labor saving devices make possible the immense daily output of this company, consisting of 10,000 complete watches containing 1,260,000 parts, and the low price at which it is possible to retail the watches.

MILK CAN EXHIBIT.

AMONG the interesting exhibits shown at the National Dairy Show, Chicago, October 10 to 19, was a display of milk cans made by Sturges & Burn Mfg. Company, Chicago, a view of which is given in the accompanying illustration. The exhibit was arranged in pyramidal form and consisted of about 1000 10-gal. cans.



Milk Can Exhibit of Sturges & Burn Mfg. Company.

tric lights. The company's cans are made of steel, which is tinned and retinned before assembling. An important feature of their construction is the manner in which the riveted body seam is finished on the inside, the rivet heads being soldered flush with the surface, and the seam loaded, or filleted, thus making the interior entirely smooth. The cleaning of the can is thus greatly facilitated. Altogether the company's exhibit was highly attractive, and was the subject of much favorable comment from the crowd of visitors attending the show.

Holiday Trade in The Hardware Store.

First Article.

EFFECTIVE METHODS OF THE JOHN E. BASSETT & CO.

THE methods employed by the John E. Bassett & Co., New Haven, Conn., for cultivating holiday trade are marked by the same intelligence and efficiency that are applied to all other departments of the company's business. Local newspaper and circular advertising, together with window displays, are the principal means employed for making announcements and attracting the attention of the public, which has been taught by long experience to

Christmas season brings out. We have so far found it unnecessary to go outside of what we consider our legitimate lines. We find it advantageous, however, to carry larger assortments at Christmas time and also to carry higher priced goods than at other times during the year. Every Hardware dealer handles Cutlery, and all Hardware dealers should sell the most of the Cutlery sold in their localities. It is a question of assortment rather than price for most people. If the Hardware dealer establishes a reputation for carrying a large stock of high grade Cutlery he need not fear any great amount of competition from the department stores. He must, however, bring his stock before the public, and must do that by intelligent advertising and attractive window and store displays. There are other things besides Cutlery which are handled by every Hardware dealer which make suitable holiday gifts, such as the following:

- Pocket Knives.
- Table Knives.
- Carving Knives.
- Plated Ware.
- Table Cutlery.
- Nut Picks and Cracks.
- Chafing Dishes.
- Coffee Percolators.
- Fireplace Goods.
- Carved Oak Bellows.
- Razors and Razor Sets.
- Scissors and Shears.
- Scissors in Cases.
- Manicure Sets.
- Postal Scales.
- Electric Novelties.
- Thermometers.
- Revolvers and Air Rifles.
- Fishing Tackle.
- Tool Chests and Cabinets.
- Carpet Sweepers.
- Kitchen Novelties.
- Family Scales.
- Bread Makers.
- Meat Choppers.
- Ice and Roller Skates.
- Sleds and Wagons.

These goods by being advertised and displayed during the interval between Thanksgiving and Christmas will bring much additional trade to the Hardwareman.

Begins Advertising After Thanksgiving.

We start in immediately after Thanksgiving to advertise Christmas goods. We begin by devoting our regular space of 4 in. to holiday goods, advertising one line at a time, and change our advertisements every two or three days. For two weeks before Christmas we change our ad

Manicure Sets.

If you would be well groomed to the tips of your fingers you should be particular as to the care of your nails. Careful manicuring is no longer confined to ladies of leisure or to gents who like to talk to the manicurist. Most folks who care at all have a few manicure tools on their dressing table—sometimes a set of them in a leather case.

We have a very nice and large display of Manicure Sets this year and although the quality is the kind you can depend on our prices start as low as \$2.00 a set.

Some Leather Novelties.

In line with our leather cases are a few leather covered goods—such as, for instance, a very attractive lot of Pocket Flasks, Drinking Cups in leather cases, Pocket Books and Bill Folders, Playing Cards and Bridge Sets in leather cases, and a few Cigar Cases.

Our cases of Cutlery are of a far greater variety and comprise everything in the line of Scissors, Manicure Goods, Table Cutlery and Razors.

Our prices are attractive in the sense that they are as low as the quality permits.

The John E. Bassett & Co.
754 CHAPEL ST.—320 STATE ST.

CUTLERY FOR CHRISTMAS.

After all is there anything more generally useful than a piece of Cutlery? When you've thought of everything else you can always fall back on it. A pocket knife for a boy or man, a set of scissors or manicure tools for a girl or woman and a carving set, a dozen table knives or some silverware for a family gift. And you'll find other suggestions here when you come to look for them.

HERE ARE A FEW OF THEM:

Pocket Knives	\$0.25	Ice Skates	\$0.50
Carving Sets	2.50	Roller Skates	1.00
Chafing Dishes	4.50	Boys' Low Sleds	.50
Coffee Percolators	2.50	Girls' High Sleds	.50
Andirons	2.00	Boys' Wagons	2.00
Fire Sticks	3.00	Boys' Tool Chests	2.00
Postal Scales	1.00	Boys' Tool Chests	2.00
Silver Cases	2.00	Men's Tool Chests	2.00
Manicure Sets	2.00	Bread Makers	2.00
Bill Folders	1.00	Family Scales	.50
Playing Cards	1.00	Carpet Sweepers	1.50
Cigar Cases	.50	Thermometers	.25
Pocket Lights	.50	Meat Choppers	.75

Even if none of these things just fit in you'll find it's time well spent to look through our store. And if you'll drop in this week you can get a copy of our delicious coffee at our demonstration of Universal Coffee Percolators and Bread Makers.

The John E. Bassett & Co.
754 CHAPEL ST.—314 STATE ST.

Single Column Announcement.

A 10-In. Two-Column Advertisement.

The Christmas Shopper

will find a few things at our store that she or he ought to have on the list. And these things will be found here in a little better assortment, of certain quality, in patterns a trifle more exclusive and at prices sometimes lower, than will be found elsewhere.

Point Knives. **Razors and Straps.**
Table Knives. **Scissors and Shears.**
Carving Knives. **Thermometers.**
Plated Ware. **Postal Scales.**
Fire Place Goods. **Oak Bellows.**
Tool Chests. **Chafing Dishes.**
Manicure Cases. **Dog Collars.**
Dressing Tools. **Meat Choppers.**
Electric Novelties. **Carpet Sweepers.**
Family Scales. **Revolvers.**
French Coffee Pots. **Skates and Sleds.**

The John E. Bassett & Co.
754 CHAPEL ST.—320 STATE ST.

Quite worth the Candle

CANDLES and Candlesticks are still in some demand. For decorative purposes and for emergencies they are still used—and they are also rather convenient. This year we found a lot of imported candlesticks and match holders—quite unique—which may offer a suggestion for Christmas. Then we also have candlesticks with chimneys which are very safe for house use.

Rather more modern are the Electric Pooler 40 cents up to 1.00.

Lamps made in a variety of sizes and shapes.

The John E. Bassett & Co.
754 CHAPEL ST.—320 STATE ST.

Scissors in Cases.

A CHRISTMAS gift appreciated by any woman is a set of good scissors. We emphasize "good", for scissors are lasting whether good or bad, and one would hardly care to be remembered as the donor of bad scissors.

We always consider the quality of the scissors first, then the attractiveness of the case. We manage to get both of the best.

Scissor Sets in cases, \$1.00 up.

We have a nice array of Double Scissors in Sheathes with or without Paper Cutters.

\$1.75 up.

The John E. Bassett & Co.
754 CHAPEL ST.—320 STATE ST.

As a Last Resort

When the train halts at any further effort to devise suitable Christmas gifts there is always one thing left, and one place to find it. And that thing, appreciated alike by boy or girl, man or maid, is a—

GOOD POCKET KNIFE

and we back just enough modesty to claim the finest and largest and best stock in town.

There are other things we might mention but we know that the tired brains of Christmas shoppers won't stand too many suggestions. But we would like to make them to you in person.

THE JOHN E. BASSETT & CO.
754 Chapel—320 State St.

A Bunch of Single Column Christmas Advertisements.

expect something interesting from "Ye Olde Hard Ware Store." Several specimens of the company's Christmas advertisements are reproduced herewith. Those of column width were nearly all got out in circular form also for envelope inclosure, an habitual practice of this house, which has previously been referred to in our columns. Further description of the company's experience and methods may best be given in George J. Bassett's own words:

Confined to Legitimate Hardware Lines.

We have always given more or less thought to increasing our Christmas trade, for the Hardware dealer is certainly entitled to his share of the business that the

every day and also put in a quarter or half page advertisement in the Sunday papers, covering the entire line.

We start in at the same time to make attractive window displays, using red cloth as a background, and make especially large displays of Cutlery. About two weeks before Christmas we put Christmas wreaths and holly in the windows to give the holiday effect. We change these displays once a week and put neat price cards on the more salable goods. Our windows are lighted in the evening whether the store is open or not, so as to attract the attention of passers-by.

For a week or 10 days before Christmas we keep our store open every evening, and we also pay particular at-

Window Displays.

A Distinctive Feature.

tention at this time to the prompt delivery of goods and prompt attention to customers. For several years we have used a bright red wrapping paper for all small parcels sent out at Christmas time, and

Company. The Joyce-Cridland Company has a large plant devoted exclusively to the manufacture of a complete line of jacks, including patent lever, geared lever, screw and hydraulic jacks, of high grade, some of which have been on the market for a generation.

124 Chapel Street. THE JOHN E. BASSETT CO. 314 State Street.



Our Old Friend Santa Claus

The family Santa Claus, driving his reindeer, or his aids or perhaps only driving a bargain—is pretty sure to visit our store for such useful Christmas Gifts as he has on his list. And he always finds a little larger stock to choose from than he finds elsewhere in his wanderings.

Here are a Few Suggestions of the Truly Good.

POCKET KNIVES Enough knives here to furnish every boy in town with one, and good knives, too. \$5 cents up.	SKATES So we talked about the kids we have. Everybody knows we have every kind and size. 50 cents up.
CARVING KNIVES Two big sizes, made blind with Carving Steel in one-piece warranted, and selling from \$3.50 set up.	SLEDS These we sell don't go to places in the first snow storm. Baby Sleds and Toboggans, too. 50 cents up.
CHAFING DISHES The newest styles in both copper and enameled. Some of the new ones are beautiful. \$2.85 up.	TOOL CHESTS For boys from six years to sixty. The cheapest are nice, but the better ones are practical. \$1.00 up.
COFFEE PERCOLATORS The up-to-date models for making coffee. Made for either kitchen or table use. \$3.00 up.	SCISSORS and SHEARS Only the best sell here. Some of them come in sets of three in leather cases. \$2.00 up.
RAZORS All the new safety razors—Gillette, Gillette and Gillette—and the old-fashioned kind in sets or single. \$1.00 up.	CARPET SWEEPERS All are Blawie's—they are always reliable. They make mighty good presents. 35 cents up.
MANICURE SETS There are mighty popular Christmas gifts when they are good quality—our quality. \$3.00 set up.	FIRE-PLACE GOODS Andirons, Fire Bars, Stove Guards and Firebricks—either iron or brass set. \$1.25 up.

Besides these we have a number of new and novel articles—very suitable for gifts—which are too numerous to even name. But we like to show them.

QUALITY PRICES
 We wish to emphasize particularly two things—QUALITY and PRICE. The fact you can always depend on as being high—the second as being low—cheaply low. We only ask a comparison.

We are serving our trade at our department of Unusual Presents, Toys and Novelty Goods.

The John E. Bassett & Co.
 754 CHAPEL ST. - 314 STATE ST.

OPEN EVENINGS.

A 12-In. Three-Column Advertisement.

people who carry such packages are an indirect advertisement for the store.

HENRY THEILE, for nearly 40 years a trusted and efficient employee of Wiebusch & Hilger, New York City, died at his home in the Borough of the Bronx October 13, from a complication of ailments, in his seventieth year. Mr. Theile was born in Germany, coming to this country while a young man, and entering the service of the elder Wiebusch in the 60's, the house later becoming Wiebusch & Hilger Hardware Company, and the business removed from Beekman to Chambers street. Mr. Theile is highly spoken of by the heads of the present house, as a painstaking, reliable and efficient man, whose principal duties were in the handling and forwarding of goods, the details of which were so carefully followed from receipt of orders to their shipment that no complaints from customers are now recalled, he having full charge of that department of the business. He was active in the execution of his duties until within the last few years, when his health perceptibly failed, but the house with which he was so long identified maintained a practical interest in his welfare until the last.

JOYCE-CRIDLAND COMPANY, Dayton, Ohio, has opened an office in the Electrical Exchange Building, 136 Liberty street, New York, in charge of W. M. Briggs, formerly connected with the New York office of the L. S. Starrett

FISHING TACKLE SPECIAL SALE.

AN effective Fishing Tackle advertisement is reproduced herewith reduced in size, as got up by Geo. W. Davis & Co., Rochester, N. Y., whose establishment is also known as "The Fair." It will be noticed that particular attention is called to the UTK Tackle and Rods manufactured by the Clark-Horrocks Company, Utica, N. Y., several of whose electrotypes for Hardware

Friday GEO. W. DAVIS & CO. Phone 2955

FISHING TACKLE

We carry a full equipment of the famous



brand of Tackle and Rods as well as best makes of European goods.

PRICES POSITIVELY LOWEST
 SALE OPENS 8 A. M. FRIDAY AND CLOSES 10 P. M. SATURDAY

Automatic Reels	The Carleton—made in Rochester, considered by all to be the peer of self-winding Reels, \$5.00 value.	\$3.95
Bamboo Rods	The UTK Split Bamboo Rod, 8-foot, silver tip, golden and tip, regular dollar rod, none better.	59c
	Heavy Galvanized 10-quart Pail, with floating basket; regular price \$1.25.	79c
Brass Reel	Fine Double Multiplying 60-yard Reel, Newbury makes, none better, the 60 kind.	35c
Hooks	Fine Double Gut tied to needle-point Hooks, all shapes, 1 to 8, 50c value; 1 dozen.	10c
Spoon Bait	All shapes and sizes, Willow Leaf, Kidney Bar and Spoon, also Spoons.	10c
Lines	An assortment of fine lines, some silk, some linen, all worth double the price; a yard.	1c

Free One of our Pocket Wallets for books, luncheon, etc., to every customer.

Part of Special Sale Fishing Tackle Advertisement of Geo. W. Davis & Co.

men's use are given place. The announcement occupied a 12-in. double column space. The upper part of the advertisement is shown in one of the illustrations. The remainder was devoted to a description of the firm's Tackle Outfits Nos. 1 and 2, and Suit Case Rods. No. 1 outfit comprised an assortment of 30 items "right out of stock," the regular value of which was stated to be \$5, but which could be had at this sale for \$2.49. The No. 2 outfit consisted of 27 items, the reproduction herewith enumerating the assortment, and giving an idea of

Tackle Outfit No. 2 Just as good stock as above, but not quite so complete; all right for a day's fun; Suggests \$5.75 at regular price. **\$1.49**

Consisting of

1—Multiplying Reel	15—Double Gut Hooks
1—UTK Split Rod	6—Spoon bait
1—60-foot Braided Line	1—Pint
1—60-yard Linn's Line	1—Kidney Bait Spoon
2—Bass Pail	1—Star Bait Spoon

One of the Special Sale Outfits.

the typographical arrangement followed. This firm makes a point of having "specials" every week, which are offered at a cut price. This sale, as will be noted from an inspection of the advertisement, opened at 8 Friday morning and continued until 10 Saturday night. Supplementing newspaper announcements the show windows of the store are used to good advantage in featuring the goods thus specially offered.

WASTING TIME AND OPPORTUNITY.

BY D. S.

THE waste of time in the average store is somewhat appalling. If based upon the value of time properly utilized, it would ruin an ordinary business inside of a year. The systematic arrangement of work every morning in a store is as essential as for a contractor in the construction of a building. Yet how many do you suppose practice this? Try it and see what it will do for you.

Buying Goods.

There is an immense waste of time in buying goods, due to the lack of proper training of the mind to pass judgment quickly. The man who goes back the third time to examine merchandise before making a decision is not in my opinion a safe buyer. One who knows his business as he should decides quickly. The old saying that a man who hesitates is lost is applicable to a buyer. If a thing does not impress you on the spot as just what you want, drop it. Occasionally a mistake is made by a too quick decision, but not often.

Sweeping.

There is not a department in one's store but that is confronted with the problem of waste. Commencing with the minor details of the store, permit me to ask if you know how the floor is swept, and if you have a method that is effective in keeping the dust from rising?

Careless sweeping soils goods, and constant dusting frequently makes stock unsalable. The proprietor who knows how to instruct his help in the art of sweeping will find that the results will amply compensate him for the time spent in this work.

Do you give personal attention to see that dead stock is disposed of in some way? Are you careful about saving your light and heat, and do you keep your windows clean, so that your light will shine?

Your Clerks.

Have you ever given much thought to your clerks? Are you positive that they have not yielded to temptation and become dishonest? Do you know who their associates are and how they spend their evenings? Have you ever got next to them, talked with them about their affairs, not always yours? Haven't you sometimes forgotten that they have aspirations, troubles, temptations like yourself, and frequently need advice? Have you placed yourself in a position where they would feel warranted in coming to you with their troubles? If you have not done these things don't complain if you fail in getting the service you should receive, and be not too much surprised if your clerks are found dishonest.

Practice Better Than Preaching.

There is one thing ever to keep in mind: Success will never come to any individual until he has educated himself to do the things he expects his clerks to do. Employees will not practice economy, be neat, industrious, careful, clean, tidy or studious if their employer is the reverse of all these. The proprietor who smokes during business hours in his store will have a hard time to keep his help from doing the same thing. The proprietor must practice the things he preaches if he expects to succeed in making his help do as he wishes.

The inefficiency of help is one of the stumbling blocks to every business, and that proprietor who is not well equipped himself will have trouble in getting the proper service out of those who are looking to him as an example.

Well Directed Energy.

Most of us are a bundle of habits, and a small way of doing things that we became accustomed to when we were working on a small salary seems to follow us. Get out of this rut, get into the habit of doing things on a larger plan. If yours is a small store, run it with as much system as the big fellow does his store, and it won't remain small very long.

That is the trouble with many of us. The push and energy put into business is not well directed. Like the painting that was examined critically by an eminent

artist, "It lacks, it lacks—why, confound it, it lacks brains." So I advise that you put more brains into your business, and see that the quality of your brains is kept unimpaired by plenty of good, healthy outdoor exercise. Take so many hours of sleep, reading and out door exercise, and adjust your hours in the store so that you can make all your time count without friction.

The man who can run his business so that waste is eliminated has solved the problem of success.

RETAIL HARDWARE CONVENTIONS NEXT YEAR.

THE annual meeting of the Nebraska Retail Hardware Association will be held at the Auditorium, in Lincoln, Neb., on February 11-14, 1908. On account of increased interest in association matters the convention will cover a period of four days, instead of three, as heretofore. A Hardware exhibition will be held in connection with the meeting, and spaces may now be reserved by communicating with J. Frank Barr, secretary, Lincoln. As has grown to be the custom where large provision has been made for Hardware displays by manufacturers and jobbers, the forenoons of the convention period will be held open to permit the members to inspect the exhibits, the affairs of the association receiving attention in the afternoon.

The 1908 meeting of the South Dakota Retail Hardware Association will be held at Aberdeen, February 4-7. The association will make a special feature of exhibits, and has engaged a hall for this purpose. Intending exhibitors may obtain full information in regard to spaces, rates, &c., from the association secretary, H. E. Johnson, Redfield. As in the case of the older organizations the mornings of the convention days will be set aside exclusively for study of the displays. So far as the programme of the convention is concerned there will be a few formal addresses from prominent men in the trade, but most of the time will be devoted to the consideration and discussion of practical subjects suggested by the Question Box.

The North Dakota convention will be held at Fargo, January 28, 29, and 30. This organization has never gone into the exhibit feature extensively, that is, it has never rented a building for this purpose or sold space. Arrangements have usually been made with some large hotel whereby manufacturers and jobbers were permitted to exhibit their lines in the lobbies and rooms of the convention hotel at reasonable charges. This course will be followed at the next meeting, and manufacturers and jobbers are cordially invited to show their goods. The association, through its secretary, C. N. Barnes, Grand Forks, will see that exhibitors are well taken care of by the management of the Hotel Metropole, which will be headquarters.

A report has been current that C. Morgan's Sons, Wilkes-Barre, Pa., have sold their Hardware business in that city. This has evidently grown out of the fact that the company recently disposed of its branch store at Pittston. Not only has the company not sold its Wilkes-Barre establishment, but it is planning an even more vigorous future for the old and well established business. The partners in the present firm have been active in the management of the business for more than 25 years, and they have no intention of retiring from it. A valuable piece of property has lately been purchased in the very heart of the business center of Wilkes-Barre with a frontage of 29 ft. 3 in. and a depth of 125 ft., running to a 15-ft. alley in the rear. This alley has exits to West Market street and North Franklin street, thus providing admirable shipping facilities. On this site the company expects to begin the erection of a store and office building in the near future.

Mason & Lee, New Richmond, Ind., have succeeded to the Hardware, Stove, Implement and furniture business of T. M. Layne.

HE WASN'T A MEMBER OF THE STATE ASSOCIATION.

BY HOOP IRON.

A FEW months ago, while visiting one of the smaller cities in the State, my first move was to roll into the first store that showed Cross Cut Saws and Axes in the window. I found a large, well selected stock of Hardware and a gentlemanly proprietor, who was perfectly sane until he commenced talking of his principal competitor. He characterized him as the biggest liar in seven counties. He said that they had agreed on prices time and time again, only to have his neighbor cut under the price to make a sale. I asked him if he belonged to the State Association, and he said "no." He could not see how becoming a member could help him any.

A few hours later I went into the store of the competitor and found him a fine fellow; genial, sociable and apparently a good stock keeper. In the course of our conversation he remarked that his opponent in business was inclined to be a little foxy. He would agree to make certain prices and wouldn't stick to them. He said that he did not belong to the association and couldn't see how there was anything in it to interest him.

Within the next three days I visited three more small cities. The principal Hardwaremen in each were workers in association matters, and never one word did I hear derogatory of a competitor. The getting together away from home influences for a few days each year does the trick. Good fellowship is developed and confidence is gained.

REQUESTS FOR CATALOGUES, Etc.

The trade is given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:

FROM W. L. NEEL, formerly traveling salesman for Norvell-Shapleigh Hardware Company, St. Louis, who has engaged in business at Princeton, Ky., and expects to handle a complete line of Hardware, Queensware, House-furnishing Goods, Saddlery, Vehicles and Implements.

FROM VALLEY HARDWARE COMPANY, Wallowa, Ore., handling Shelf Hardware, Stoves, Tinware, Agricultural Implements, Paints, Oils, Builders' Hardware, Sash and Doors.

FROM H. H. PEEPLES & SONS, Savannah, Ga., who recently suffered a heavy loss by fire. A wholesale and retail business is conducted in Shelf Hardware, Stoves, Tinware, Agricultural Implements and Sporting Goods.

The New York Belting & Packing Company, 91-93 Chambers street, New York, is exhibiting in its show window a section of rubber belt, cut out of a belt of its manufacture in the seventies. The belt, 36 in. wide, seven ply, of 32-ounce duck and rubber, at least 400 ft. long, was sold to the Chicago, Milwaukee & St. Paul Railway Company in 1879 for the Milwaukee B. Elevator, Minneapolis, Minn., and has been in constant service since that date, or a period of 28 years. Recent repairs in the splice required 20 ft. of new stock; otherwise, the original belt is intact, and apparently good for several years to come. The section on exhibition is soft and pliable, the friction, it is said, as good as originally, and no obvious deterioration in quality. The existence of the belt had passed from the attention of the company, the forwarding of the 2-ft. end originating with the pleased customer, the New York Belting & Packing Company asserting that it makes belts of as good, if not better, quality now.

Ducommun Hardware Company, Los Angeles, Cal., has been incorporated, succeeding C. Ducommun. This is one of the oldest houses in the far West, having been established in 1849 by Charles L. Ducommun.

MISCELLANEOUS NOTES.

Worcester Lawn Mower Company.

The Worcester Lawn Mower Company, Worcester, Mass., for which J. C. McCarty & Co., New York, are selling agents, has added to its line a new five-knife machine, which is offered in 15, 17, 19 and 21 in. sizes. The machine is high wheel, ball bearing, and, the company states, strictly high grade in every particular.

Steel Stools.

The Angle Steel Sled Company, Kalamazoo, Mich., an extensive manufacturer of such goods, has recently improved its line of steel stools by adopting heavier steel in their construction, and is using a dished seat instead of the flat one heretofore used. This improvement not only adds to the durability of the stool, but makes it much more desirable and comfortable than the former pattern. These stools are made in sizes from 20 to 36 in. high, advancing 2 in. to each size.

Dixon's Powdered Stove Polish.

The Joseph Dixon Crucible Company, Jersey City, N. J., and 68 Reade street, New York, has just put on the market Dixon's powdered stove polish. It consists of finely powdered graphite freed from impurities, which is neatly put up in round pasteboard boxes 2½ in. in diameter and 2½ in. high. In use two or more holes may be punctured in the top, so that the contents can be shaken on to a damp cloth for application to stove, which can then be polished with a cotton cloth. Or a thin paste can be made of about the consistency of cream by mixing the powder with water and applying as one would any paste.

The Richards Mfg. Company's New Goods.

The accompanying list represents recent additions to the line of the Richards Mfg. Company, Aurora, Ill., as shown in its catalogue lately issued:

- No. 4, Trojan trolley roller bearing door hanger, especially adapted for post office and Government work.
- No. 10, Simplex ball bearing noiseless house door hanger.
- No. 14, Perfection single track steel ball bearing house door hanger, extra heavy.
- No. 11, Pacific roller bearing steel single track house door hanger, extra heavy.
- No. 23, Richards' Swan noiseless house door hanger.
- No. 29, Richards' Hercules trolley barn and fire door hanger.
- No. 142, Richards' Jap roller trolley barn door hanger.
- No. 102, Richards' Monarch fire door fixtures, approved by the National Board of Underwriters.
- No. 105, Richards' Buckeye fire door fixtures, similar to No. 102 Monarch, except as to cord and fusible link arrangement.
- No. 204, fire door fixtures for double doors.
- No. 303, fire door fixtures for level track, designed for use where there is insufficient head room to allow of inclined track.
- No. 304, special level track fire door fixtures, requiring only 5 in. head room.
- No. 206, new automatic fire door fixtures for swing doors.
- No. 306, new automatic fire door fixtures for double swing doors, arranged for either door to close first as desired.
- No. 208, Richards' trap door fixtures.
- No. 296, Richards' Perfection ball bearing noiseless store ladder.
- No. 124, Ideal steel sliding door latch.
- No. 224, Teddy steel gate latch, reversible for right or left gates.
- No. 165, Wizard adjustable ratchet wrench.
- No. 170, Richards' Rose Perpetual miter box.
- No. 139, Richards' patent self-locking pin clevis.
- No. 180, Richards' nonsag door stay.
- No. 320, Richards' ball bearing kitchen grindstone.

O. D. S. Cleaner.

F. W. Devoe & Co., 101-103 Fulton street, New York, and 176 Randolph street, Chicago, have recently placed on the market the O. D. S. cleaner. The two important features of the compound are that it is an excellent solvent and absolutely noninflammable, so that it can be used with impunity day or night and without regard to proximity of fire or flame. It is as transparent as water, absolutely colorless and of about the same fluidity. In use it dissolves stain, soil and dirt of different kinds commonly found on clothing, millinery, straw goods, gloves,

&c., and is guaranteed by the manufacturers as applicable for the most delicate fabrics. In applying it cloth or other good absorbent should be placed underneath the material to be cleaned to more quickly absorb the foreign matter. Other characteristics to which attention is called are that it does not leave a ring of grease on a cleaned surface as does benzine, evaporates quicker than benzine and that absolutely no odor remains five minutes after application. The name of the preparation is an abbreviation of the quotation from Macbeth, "Out damned spot," &c. It is put up in $\frac{1}{2}$, 1 and 2 pint bottles for retailing at 25 cents, 50 cents and \$1, respectively.

Detachable Base Vises.

The Charles Parker Company, Meriden, Conn., and 32 Warren street, New York, has added to its large line of vises for numerous purposes a series of detachable base vises. The vise proper is of "Never Break" brand and quality, long known in the trade. The base, which is the new feature, is so made that it can be attached permanently to work bench of professional or amateur, placed inconspicuously on the running board of an automobile, deck of motor boat, &c., while the main portion of the vise itself, when not in use, can be kept in toolbox or other place out of the way. When needed the vise can be placed over the base in such manner as to permit the bolt of the tightening stud to drop into the sliding groove in the base, the proper position of the parts in the operation being correctly indicated by ridges on both base and foot of vise when brought opposite each other. By means of extra bases previously placed one vise can be transferred to different places where its use might be required, the bases being priced moderately. Such a vise is especially suitable in connection with a gentleman's combination bench and tool cabinet, on account of the ease with which the bulky tool can be placed or displaced.

The Kilborn & Bishop Company.

The Kilborn & Bishop Company, New Haven, Conn., has brought out several new small tools, including the K. & B. fence plier, the Sillex grade brick chisels, the KB brand cape chisels and the KB brand cold chisels. The fence plier is specially designed for use in putting up and repairing wire fences, the cutter taking in and cutting easily the largest double twisted fence wire, the full capacity being 7-32 in. The inside of the jaws has tempered gripping surfaces for grasping a staple and pulling it from the post. The jaws are shaped to grasp the staple at its bent end just on top of the wire where the staple is furthest out of the wood. One side of the tool is provided with a cutting edge for use in chipping away the wood where the staple is embedded so far that it cannot be gripped, a special convenience where the wire has been attached to a tree, the bark of which has overgrown it. The plier is also formed to hold any fence wire for splicing. The brick chisels are made in five widths from $\frac{1}{2}$ to 1 in., by eighths, each width in five lengths, from 10 to 18 in. They are made from a tool steel that will retemper. The cape chisels and cold chisels, of high grade tool steel, are each furnished in eight sizes.

Animal Trap Company's \$5 Assortment.

A new departure from the customary methods of selling traps has been devised by the Animal Trap Company, Lititz, Pa., branch of the Oneida Community. This company has sought by means of a canvass to ascertain the relative demand for the various types of mouse and rat traps, as based on the actual experience of individual merchants throughout the country. It was argued that having to buy a number of different lines by the dozen, according to custom, the merchant was liable to be overstocked with certain traps and short of others in more active demand. In short, it was difficult for him to maintain an economical and profitable proportion, a correct relation between stock and demand, in goods of this character. The company has accordingly provided a

special assortment, illustrated herewith, including appropriate quantities of nineteen different kinds of mouse

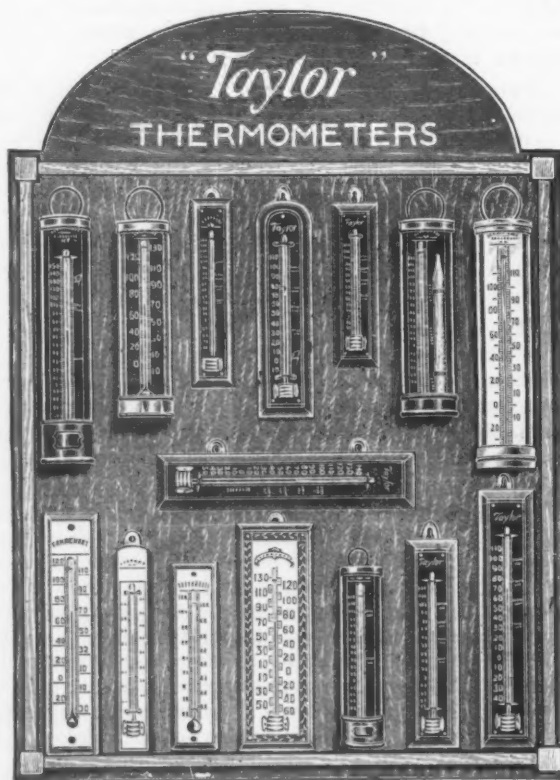


Animal Trap Company's \$5 Assortment.

and rat traps, the whole assortment selling to the trade at \$5.

Sampled Taylor Thermometers.

The Taylor Bros. Company, Rochester, N. Y., and 85 Chambers street, New York, has just put on the market a group of handsomely sampled thermometers, in assortments 1, 2 and 3, the illustration herewith showing No. 1. The purpose of this novelty is to effectively assist hardwaremen and other merchants in making sales by



Thermometer Sample Board for Retailing.

supplying ready for instant use an attractive and compact exhibit. The samples are mounted on an oak board of $\frac{3}{4}$ -in. stuff, $23\frac{1}{2} \times 32$ in. in dimensions, having a waxed finish in green, the lettering at top being black shaded in red. Assortment No. 1 consists of 37 thermometers, 15 displayed, priced to retail in seven grades at from 25 cents to \$1.25 each. No. 2 assortment, containing 52 thermometers, ranging from 25 cents to \$1.50 each, in eight different prices. No. 3 assortment consists of 87 thermometers in nine varieties of price from 25

cents to \$1.50 each. With each assortment there is furnished a printed schedule giving the quantity of each style and its retail selling price. At the printed prices, totaling, respectively, \$19.70, \$30.55 and \$49.75, there is a profit on the cost of approximately 66 2-3 per cent. on Nos. 1 and 2 and nearly 80 per cent. on No. 3. Each assortment, with sample board, is packed in an original box, and for the convenience of customers ordering in quantities, a suitable number of boxes will be crated for shipment, thus greatly facilitating reshipments, as each assortment is complete in one box. The company also furnishes to jobbers an Albertype 7½ x 11 in., illustrating the board, for the convenience of salesmen.

The Wiss New Razor and Shears.

The J. Wiss & Sons Company, Newark, N. J., is offering the razor and shears illustrated herewith. The razor tang shown in Fig. 1 has fine cuts like a file on the under side, while the upper side is finished with fine ridges.



Fig. 1.—The Wiss Sure Grip Razor.

The cuts and ridges are to prevent the razor slipping from the fingers while shaving, no matter how moist or wet the operator's hands may be. The razor is regularly made with flat rubber handle and is ground medium thin concave, thin concave and very thin concave, in 4-8, 5-8 and 6-8 sizes. The razor is supplied with fancy handles at proportionately extra cost. The feature of the shears shown in Fig. 2 is the Facile screw bolt. It is simple, being composed of only two parts, scientifically made, but can be taken apart by any one with an ordinary wrench, a wrench suitable for this purpose being furnished with each pair. The bolt is made especially for trimmers and

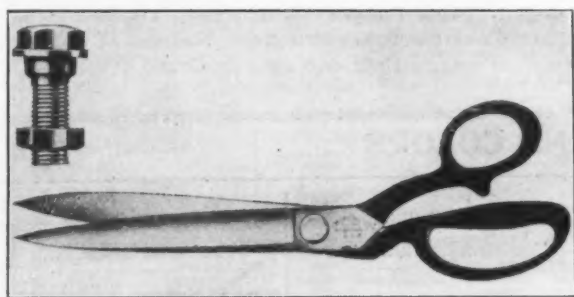


Fig. 2.—The Facile Screw Bolt Shears.

small tailor shears, used for extra heavy work. Shears fitted with the bolt can be easily adjusted with a wrench to work tight or loose and can be quickly taken apart to be cleaned; thus all annoyance from lint and dirt, which might collect under an ordinary bolt, is obviated. Another advantage pointed out is the absence of annoyance from loose screws. The shears include four sizes of heavy trimmers, from 10 to 12 in.; five sizes of tailor shears, from 10 to 13 in., and raised blade tailor shears, 12 and 12½ in. long. In this connection it may be stated that the company is putting up scissors and shears in jewelry boxes, this being a new line with the company.

Razac Safety Razor.

The Hapgoods Sales Company, 305-309 Broadway, New York, as sole selling agents for the C. J. Tagliabue Mfg. Company, 53 Fulton street, New York, an old established house manufacturing surgical articles, has put on the market the Razac Safety Razor, here shown. Some

of the features to which attention is drawn are that the blade, with two cutting edges, is held at the correct shaving angle and no adjustment is necessary; that it can be instantly cleaned and dried, a slight pressure on the plunger at the back, inside of which is a brass spiral spring, releasing the blade caught at each corner under bosses for the protection of the corners. The knurled handle, ¾ x 2½ in., is made of brass and triple silver plated. The head is made of an aluminum alloy, strong and light. The blade, ¾ x 1 9-16 in., is made of Swedish razor steel, with regular razor temper and razor edges.



Fig. 1.—Razac Safety Razor.

Fig. 2 reproduces the standard case, with oval top in black leather and button hasp fastener, the other dimensions of the case being 1¾ x 2¼ x 4¼ in., and lined inside with a tan colored leather, padded at the top. There are two receptacles for the 12 blades sent with each holder, lettered, respectively, "sharp" and "dull," and the case is inclosed in a neat double pasteboard box. Some of the razors are gold plated, and there are many assortments in leathers, such as pig skin, walrus and seal,



Fig. 2.—Style of Standard Case, with 12 Two-Edge Blades.

ranging in list price from the \$3.50 standard case, restricted price, to elegant travelers' assortments costing \$25 in fine flexible leather cases, equipped with various kinds of brushes, shaving sticks, powder, manicure articles, &c., in silver plated and cut glass containers.

The Handy Hammock Hook and Line Cleat.

The Parker Wire Goods Company, Worcester, Mass., is putting on the market hooks and cleats, shown herewith. The patented idea of a rocking motion in the hammock hook and the line cleat is the same. When a rope



Fig. 1.—The Handy Hammock Hook.

is drawn around the hook or cleat from one side, that side tips up so that when the rope is carried to the other end and drawn up tight it causes both ends of the device to press upon the rope, and the tighter the rope is drawn the harder the device presses, thus preventing slipping. The rope is thus quickly attached and needs no tying. The hammock hook allows the rope to be adjusted quickly

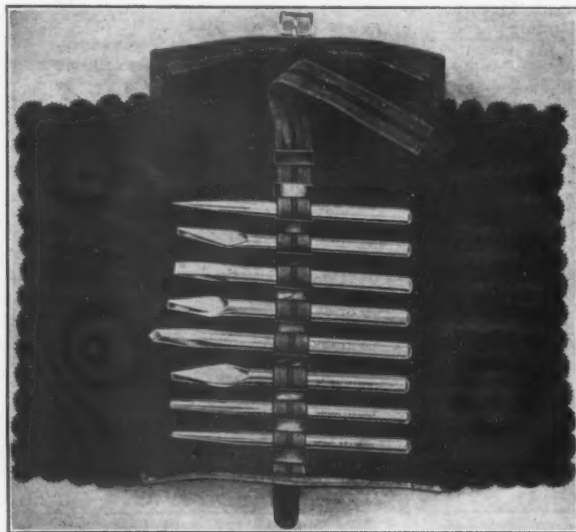


Fig. 2.—The Handy Line Cleat.

and easily in either direction. The hook is furnished in one size, galvanized. With the cleat, it is only necessary to pass the rope around once, as shown in Fig. 2, to fasten it securely. The cleat is made in two sizes, galvanized, and can be used for many purposes.

The National Automobile Kit.

The accompanying illustration shows an automobile kit offered by the National Cutlery Company, Detroit, Mich. It consists of a heavy canvas roll, strong, and neatly made, with a colored cotton plush lining and flaps to completely protect the inclosed tools from dust and moisture, besides keeping them in a compact and con-



The National Automobile Kit.

venient manner. The roll contains eight full polished tools of the company's manufacture, all $\frac{3}{8}$ x 6 in. in size, as follows: Cold chisel, cape chisel, diamond point cold chisel, round nose cape chisel, keyseating chisel, two machine punches and a center punch. These tools are referred to as being most useful to the automobilist. To these may be added a 1-in. rivet chisel or a $1\frac{1}{2}$ -in. cold chisel in the vacant loop space, at proportionate increase in cost.

E. M. & M. Walsh, New Haven, Conn., Hardware merchants, have purchased the stock and business of the George H. Baker Company of that city. The new owners will continue the Baker Company's business at 956 State street, as well as their own store on Grand avenue.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—		Miscellaneous—		Blue, Prussian.....		Black, Ivory.....	
	gal.				lb.		lb.
Linseed, Western, raw.....	44% @ 45	Barytes:		Blue, Ultramarine.....	32 @ 36	Lamp, commercial.....	4 @ 6
City, Boiled.....	50 @ 61	White, Foreign.....	ton \$18.50 @ 20.50	Brown, Vandyke.....	13 @ 16	Blue, Celestial.....	4 @ 6
State and Western, raw.....	48 @ 49	Amer. floated.....	ton 19.00 @ 20.00	Green, Chrome.....	11 @ 14	Blue, Chinese.....	30 @ 33
Raw, Calcutta, in bbls.....	70 @	Off color.....	ton 13.00 @ 16.50	Green, Paris.....	12 @ 15	Blue, Prussian.....	28 @ 32
Lard, Extra Prime, Winter.....	74 @ 77	Chalk, in bulk.....	ton 3.00 @ 3.25	Sienna, Raw.....	12 @ 15	Blue, Ultramarine.....	34 @ 35
Extra No. 1.....	53 @ 56	In bbls.....	100 lb. @ .35	Sienna, Burnt.....	12 @ 15	Brown, Spanish.....	34 @ 35
No. 1.....	49 @ 52	China Clay, Imported.....	ton 11.00 @ 17.50	Umber, Raw.....	11 @ 14	Carmine, No. 40.....	3.10 @ 3.25
Cotton-seed, Crude, f.o.b. mills.....	28 @ 30	Cobalt, Oxide.....	100 lb. 2.50 @ 2.60	Umber, Burnt.....	11 @ 14	Green, Chrome, ordinary.....	34 @ 5
Summer Yellow, Prime.....	44 @ 44 1/2	Whiting, Commercial.....	100 lb. .43 @ .52			Green, Chrome, pure.....	17 @ 25
Summer White.....	40 @ 50	Gilders.....	100 lb. .55 @ .65			Lead, Red, bbls., 1/2 bbls., kegs.....	74 @ 74
Yellow Winter.....	40 @ 50	Ex. Gilders.....	100 lb. .60 @ .65			Litharge, bbls., 1/2 bbls., kegs.....	74 @ 74
Sperm.....	59 @ 60					Ocher, American.....	ton \$8.50 @ 16.00
Natural Winter.....	70 @ 72					American Golden.....	24 @ 34
Bleached Winter.....	74 @ 76					French.....	14 @ 2
Bleached Winter, Extra.....	74 @ 76					Foreign Golden.....	3 @ 4
Tallow, Prime.....	62 @ 64					Orange Mineral, English.....	10 @ 12
Whale, Crude.....	35 @ 36					French.....	10 @ 12
Natural Winter.....	46 @ 48					American.....	10 @ 12
Bleached Winter.....	49 @ 51					Red, Indian, English.....	44 @ 6
Extra Bleached Winter.....	51 @ 53					American.....	3 @ 3 1/2
Menhaden, Brown, Strained.....	41 @ 42					Red, Turkey, English.....	4 @ 10
Light Strained.....	41 @ 42					Red, Tuscan, English.....	4 @ 10
Northern.....	41 @ 42					Red, Venetian, Amer. 100 lb. \$0.50 @ 1.25	
Southern.....	41 @ 42					English.....	100 lb. \$1.15 @ 1.60
Cocconut, Ceylon.....	8 @ 8 1/2					Sienna, Italian, Burnt and	
Cochin.....	9 @ 9 1/2					Powdered.....	3 @ 9
Cod, Domestic, Prime.....	42 @ 43					Italian, Raw, Powdered.....	3 @ 7
Newfoundland.....	42 @ 43					American, Raw.....	14 @ 2
Red, Elaine.....	46 @ 49					American Burnt and Pow'd.....	14 @ 2
Saponified.....	19 @ 20					Talc, French.....	ton \$18.00 @ 25.00
Olive, Italian, bbls., Yellow.....	77 1/2 @ 80					Terra Alba, French.....	100 lb. .80 @ 1.00
Neatsfoot, Prime.....	58 @ 60					English.....	100 lb. .80 @ 1.00
Palm, Lagos.....	6 @ 6 1/2					American.....	100 lb. No. 2.....
						Umber, T'key, Bnt. and Pow'd.....	2 @ 3 1/2
						Turkey, Raw and Powdered.....	24 @ 3 1/2
						Burnt, American.....	14 @ 2
						Raw, American.....	14 @ 2
						Yellow Chrome, Pure.....	12 @ 14
						Vermilion, American Lead.....	7 @ 25
						Quicksilver, bulk.....	6 @
						Quicksilver, bags.....	6 @ 65
						EnGLISH, Imported.....	65 @ 70
						Chinese.....	20.90 @ 21.00

Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33½ @ 33½ & 10% signifies

that the price of the goods in question ranges from 33½ per cent. discount to 33½ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1907, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—"The Iron Age Standard Hardware Lists" contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—

Columbian and Domestic.....33½%
North.....33½%
Zimmerman's—See Fasteners, Blind.

Window Stop—

Ives' Patent.....33½%
Taplin's Perfection.....33½%

Ammunition—See Caps, Cartridges, Shells, &c.

Anti-Rattlers—

Fernald Mfg. Co. Burton Anti-Rattlers, ½ doz. pairs, Nos. 1, \$0.75; 2, \$0.60; 4, \$1.00; 5, \$0.50.
Fernald Quick Shifter, ½ doz. pairs.....\$2.00@3.00

Anvils—American—

Eagle Anvils.....½ lb. @ 8½¢
Hay-Budden, Wrought.....9½¢@9½¢
Trenton.....9½¢@9½¢

Imported—

Peter Wright & Sons, ½ lb. 84 to 340 lb. 11¢; 350 to 600 lb. 11½¢.

Anvil, Vise and Drill—
Millers Falls Co., \$18.00.....15¢@10%

Apple Parers—See Parers, Apple, &c.

Aprons, Blacksmiths'—

Livingston Nail Co.....33½%

Augers and Bits—

Com. Double Spur.....75¢@80¢
Jennings' Patn., Bright, 65¢@10¢
Black Lip or Blued.....65¢@65¢
Boring Mach. Augers.....70¢
Car Bits, 12-in. twist.....40¢@10¢
Ford's Auger and Car Bits.....40¢@5¢
Ft. Washington Auger Co., Concord's.....35¢
Forstner Pat. Auger Bits.....25¢
C. E. Jennings & Co.:
No. 10 ext. lip, R. Jennings' list, 25¢@7½¢
No. 30, R. Jennings' list.....50¢
Russell Jennings.....25¢@10¢
L'Hommiedieu Car Bits.....15¢
Mayhew's Countersink Bits.....20¢
Pugh's Black Action Bits.....20¢
Pugh's Jennings' Pattern.....25¢
Snell's Auger Bits.....60¢
Snell's Bell Hangers Bits.....60¢
Snell's Car Bits, 12-in. twist.....60¢
Snell's King Auger Bits.....50¢
Wright's Jennings Bits.....50¢

Bit Stock Drills—

See Drills, Twist.

Expansive Bits—

Clark's Pattern, No. 1, ½ doz. 25¢; No. 2, 12¢.
Ford's, Clark's Pattern.....66¢@5¢
C. E. Jennings & Co. Steer's Pat. 25¢
Lavigne Pat., small size, \$18.00; large size, \$26.00.....60¢@10¢
Swan's.....60¢

Gimlet Bits—

Common Dble. Out.....\$3.00@3.25
German Pattern, Nos. 1 to 10, \$4.75; 11 to 15, \$5.75

Hollow Augers—

Bonney Pat., per doz. \$6.50@7.00
Ames.....25¢@10¢
Universal.....20¢

Ship Augers and Bits—

Ship Augers.....40¢@10¢
Ford's.....33½¢@5¢
C. E. Jennings & Co.:
L'Hommiedieu's.....6¢
Watrous.....33½¢@7½¢
Snell's.....40¢

Awl Hafts—See Handles, Mechanics' Tool.

Awls—

Brad Awls:
Handled.....gro. \$2.75@3.00
Unhanded, Shiddered.....gro. 65¢@70¢
Unhanded, Patent.....gro. 65¢@70¢

Peg Awls—

Unhanded, Patent.....gro. 31¢@34¢
Unhanded, Shiddered.....gro. 65¢@70¢

Scratch Awls—

Handled, Com.....gro. \$3.50@4.00
Handled, Socket.....gro. \$11.50@12.00

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

Single Bit, base weights: Per doz.
First Quality.....\$4.75@5.00
Second Quality.....\$4.25@4.50

Double Bit, base weights:
First Quality.....\$7.00@7.50
Second Quality.....\$6.50@6.75

Axle Grease—

See Grease, Axle

Axles—

Iron or Steel

Concord, Loose Collar.....4½¢@5¢
Concord, Solid Collar.....4½¢@5½¢
No. 1 Common, Loose.....3½¢@4½¢
No. 1½ Com., New Style.....4½¢@5¢
No. 2 Solid Collar.....4½¢@5¢
Half Patent:
Nos. 7, 8, 11 and 12.....65¢@65¢@10¢
Nos. 13 to 14.....65¢@65¢@10¢
Nos. 15 to 18.....70¢@70¢@10¢
Nos. 19 to 22.....70¢@70¢@10¢

Boxes, Axle—

Common and Concord, not turned lb., 5¢@6¢
Common and Concord, turned lb., 6¢@7¢
Half Patent.....lb., 9½¢@10¢

Bait—

Fishing—

Hendryx:
A Bait.....20¢
B Bait.....25¢
Competitor Bait.....20¢@5¢

Balances—

Sash—

Caldwell new list.....50¢
Fullman.....50¢@10¢@60¢

Spring—

Spring Balances.....50¢@10¢@60¢
Chatillon's:
Light Spg. Balances.....50¢@50¢@10¢
Straight Balances.....10¢@40¢@10¢
Circular Balances.....50¢@10¢
Large Dial.....30¢

Barb Wire—See Wire, Barb.

Bars—

Crow—

Steel Crowbars, 10 to 40 lb. per lb., —@2½¢@2½¢
Tower
No. 10 Ideal, Nickel Plate.....½ gro. \$5.50

Beams, Scale—

Scale Beams.....40¢
Chatillon's No. 1.....40¢
Chatillon's No. 2.....40¢

Beaters, Carpet—

Holt-Lyon Co.:
No. 12 Wire Coppered ½ doz. \$0.80;
Tinned.....\$0.85
No. 11 Wire Coppered ½ doz. \$1.15;
Tinned.....\$1.20
No. 10 Wire Tinned.....½ doz. \$1.50

Beaters, Egg—

Holt-Lyon Co.:
Holt, per doz., No. 5, Jap'd, \$0.80;
No. A, Jap'd, \$1.15; No. B, Jap'd, \$1.85; No. 6, Jap'd, \$1.65.
Lyon, Jap'd, per doz., No. 2, \$1.35.
Taplin Mfg. Co.:
Improved Dover, per gro. No. 60, \$6.00; No. 75, \$6.50; No. 100, \$7.00;
No. 102, Tin'd, \$8.50; No. 150, Hotel, \$15.00; No. 152, Hotel Tin'd, \$17.00; No. 200, Tumbler, \$8.50; No. 202, Tumbler Tin'd, \$9.50; No. 300, Mammoth, per doz., \$25.00.
Turner & Seymour Mfg. Co.:
T. & S. Dover.....\$4.50

Bellows—

Blacksmith, Standard List:
Split Leather.....60¢@10¢@65¢
Grain Leather.....50¢@50¢@10¢

Hand—

Inch.....6 7 8 9 10
Doz. \$5.00 5.50 6.00 6.50 7.50

Molders—

Inch.....10 12 14 16
Doz. \$7.50 9.00 12.00 15.00

Bells—

Cow—

Ordinary Goods.....75¢@10¢@5¢
High grade.....70¢@10¢@5¢
Jersey.....75¢@10¢
Texas Star.....50¢

Door—

Home, R. & E. Mfg. Co.'s.....55¢@10¢

Hand—

Polished, Brass.....50¢@50¢@10¢
White Metal.....50¢@50¢@5¢
Nickel Plated.....50¢
Stainless.....50¢
Cone's Globe Hand Bells.....33½¢@35¢

Miscellaneous—

Farm Bells.....lb., 2½¢@2½¢
Church and School.....60¢@60¢@5¢

Belting—

Leather—
Extra Heavy, Short Lap.....60¢@5¢
Regular Short Lap.....60¢@10¢@5¢
Standard.....70¢@5¢
Light Standard.....75¢
Cut Leather Lacing.....40¢@10¢
Leather Lacing Sides, per sq. ft. 2½¢@5¢

Rubber—

Agricultural (Low Grade).....75¢@75¢@5¢
Common Standard.....70¢@70¢@5¢
Standard.....70¢@70¢@5¢
Extra.....60¢@50¢@10¢
High Grade.....50¢@50¢@10¢

Bench Stops—

See Stops, Bench

Benders and Upsetters,

Tire—
Green River Tire Benders and Upsetters.....20¢

Bicycle Goods—

John S. Leng's Son & Co.'s 1907 list:
Chain, Parts, Spokes.....50¢
Tubes.....60¢

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See Augers and Bits.

Blocks—

Tackle—
Common Wooden.....75¢
B. & L. B. Co.:
Boston Wood Snatch, 50%; Eclipse Steel, 75%; Hollow Steel, 50¢@10¢
Star Wire Rope, 50%; Tarbox Metal Snatch, 50%; Tarbox New Style Steel, 50¢@10¢; Wire Rope Snatch, 50%.
Lave's Patent Automatic Lock and Junior.....30¢
See also Machines, Hoisting.

Boards, Stove—

Paper and Wood Lined.....40¢
Embossed.....50¢

Boards, Wash—

See Washboards.

Bobs, Plumb—

Keuffel & Esser Co.....30¢@5¢

Bolts—

Carriage, Machine, &c.—
Common Carriage (cut thread):
¾ x 6 and smaller.....70¢@—
Larger and longer.....65¢@—
Phila. Eagle, \$3.00 list.....80¢@—
Bolt Ends.....65¢@50¢
Machine (Cut Thread):
¾ x 4 and smaller.....70¢@7½¢@—
Larger and longer.....65¢@50¢

Door and Shutter—

Cast Iron Barrel, Japanned, Round Brass Knob:
Inch.....3 4 5 6 8
Per doz. \$1.30 1.35 1.45 1.60 1.80
Cast Iron Spring Foot, Jap'd:
Inch.....6 8 10
Per doz. \$1.20 1.50 2.25
Cast Iron Chain, Flat, Japanned:
Inch.....6 8 10
Per doz. \$1.00 1.40 1.65
Cast Iron Flat Shutter, Jap'd, Brass Knobs:
Inch.....6 8 10
Per doz. \$0.75 1.35 1.25
Wrought Barrel Jap'd.....80¢@80¢@10¢
Barrel Bronzed.....60¢@10¢
Spring.....70¢@10¢@70¢@10¢
Shutter.....50¢@50¢@10¢@5¢
Square Neck.....75¢@75¢@10¢
Square.....70¢@70¢@10¢
Ives' Patent Door.....30¢
Ives' Wrought Metal.....40¢

Expansion—

Plow and Stove—

Plow.....60¢@5¢@—
Stove.....50¢@84¢@5¢

Tire—

Common Iron.....80¢
Norway Iron.....90¢
American Screw Company:
Norway Phila., list Oct. 16, '04.....80¢
Eagle Phila., list Oct. 16, '04.....82½¢
Hay State, list Dec. 28, '09.....90¢
Franklin Moore Co.:
Norway Phila., list Oct. 16, '04.....80¢
Eagle Phila., list Oct. 16, '04.....82½¢
Eclipse, list Dec. 28, '09.....80¢
Russell, Burdall & Ward Bolt & Nut Co.:
Empire, list Dec. 24, '09.....80¢
Norway Phila., list Oct. 16, '04.....80¢
Eagle.....82½¢
Shelton Co.:
Tiger Brand, list Dec. 28, '09.....80¢
Phila., Eagle, list Oct. 16, 1881.....82½¢
Upson Nut Co.:
Tire Bolts.....72½¢

Borers, Bung—

Borers Bung, Ring, with Handle:
Inch.....1¼ 1½ 1¾ 2
Per doz. \$4.80 5.60 6.40 8.00
Inch.....2½ 2¾
Per doz. \$8.65 11.50
Enterprise Mfg. Co., No. 1, \$1.25; No. 2, \$1.75; No. 3, \$2.50 each.....25¢

Boxes, Mite—

C. E. Jennings & Co.....25¢
Langdon, New Langdon and Langdon Improved, 20¢@10¢; Langdon Acme.....15¢@10¢
Perfection.....40¢
Seavey.....15¢

Braces—

Common Bull, American.....\$1.50
Harber's.....50¢@10¢@60¢@10¢
Fray's Genuine Spofford's.....60¢
Fray's No. 70 to 120, 81 to 123, 207 to 414.....60¢
C. E. Jennings & Co.....50¢@5¢
Mayhew's Hatchet.....60¢
Mayhew's Quick Action Hay Pat. 50¢
Millers Falls Drill Braces.....25¢@10¢
P. S. & W. Co., Peck's Pat. 60¢@10¢

Brackets—

Wrought Steel.....70¢@10¢@75¢@10¢
Bradley Metal Clasp, 80¢@10¢@80¢@10¢
Griffin's Pressed Steel.....75¢@75¢@10¢
Griffin's Folding Brackets.....70¢@10¢
Taplin Victor Handy Egg Beater Bracket.....½ doz. \$1.50

Bright Wire Goods—

See Wire and Wire Goods.

Broilers—

Kilbourne Mfg. Co.....75¢@20¢
Wire Goods Co.....75¢

Buckets, Galvanized—

M't'gr's list, price per gross:
Quart. 10 12 14
Water, Reg. 25.35 28.00 32.00
Water, Hvn. 45.35 48.00 52.00
Fire, Rd. Btm. 32.00 34.65 38.65
Well.....37.35 41.35 45.35

Bull Rings—See Rings, Bull

Butts—

Brass—
Wrought, High List, Oct. 26, '06.
Cast Brass, Tiebout's.....40¢
Cast Iron—
Fast Joint, Broad.....40¢@10¢@50¢
Fast Joint, Narrow.....40¢@10¢@50¢
Loose Joint.....70¢@10¢@75¢
Loose Pin.....70¢@10¢@75¢
Mayer's Hinges.....70¢@70¢@5¢
Parliament Butts.....70¢@70¢@5¢

Wrought Steel—

Bright.
Reversible and Broad.....70¢@5¢
Light Narrow, Light Reversible.....70¢@5¢
Loose Joint, Narrow, Light Inside Blind, &c.....70¢
Back Flaps, Table Chest.....65¢
Japanned.
Light Narrow, Loose Pin.....40¢@5¢
Light Narrow, Bull Tip.....60¢
Broad.....40¢@5¢
Steeple Tipped.....70¢
Ball Tipped.....70¢

Extra 10¢

Cages, Bird—

Henryx Brass: Series 3000, 5000,
1100, net list; 1200, 15%; 200, 300,
900 30%
Henryx Bronze: Series 700, 800, 30
Henryx Enamelled 35%

Calipers—See Compasses.**Calks, Toe and Heel—**

Blunt, 1 prong, per lb., 4 1/4 @ 4 1/2
Sharp, 1 prong, per lb., 4 1/4 @ 5 1/4
Burke's, Blunt, 4 @ 4 1/4; Sharp, 4 @ 5 1/4
Lautier, Blunt, 4 @ 4 1/4; Sharp, 4 @ 5 1/4
Perkins', Blunt, 4 @ 4 1/4; Sharp, 4 @ 5 1/4

Can Openers—

See Openers, Can.

Caps, Percussion—

Eley's E. B. 50 @ 55¢
O. D. per M \$4 @ 55¢
F. L. per M \$4 @ 55¢
O. E. per M \$4 @ 55¢
Musket per M 60 @ 65¢

Primers—

Berdan Primers, \$2 per M. 20 @ 5¢
Primer Shells and Bullets, 15 @ 10¢
All other primers per M \$1.50 @ 1.60

Carpet Stretchers—

See Stretchers, Carpet.

Cartridges—**Blank Cartridges:**

32 C. F., \$5.50 10 @ 5¢
38 C. F., \$7.00 10 @ 5¢
22 cal. Rim, \$1.50 10 @ 5¢
32 cal. Rim, \$2.75 10 @ 5¢
B. B. Caps, Con. Ball, Sigid. \$1.90
B. B. Caps, Round Ball \$1.40
Central Fire 25¢
Target and Sporting Rifle 15 @ 5¢
Primer Shells and Bullets, 15 @ 10¢
Rim Fire, Sporting 50¢
Rim Fire, Military 15 @ 5¢

Casters—

Bed 65 @ 10¢
Plate 60 @ 5¢
Philadelphia 70 @ 10¢
Acme, Ball Bearings 30¢
Gem (Roller Bearings) 70 @ 10¢
Steel Gem 20¢
Standard Ball Bearings 45¢
Yale (Double Wheel) low list, 10 @ 10¢

Cattle Leaders—

See Leaders, Cattle.

Chain, Proof Coil—

American Coil, Straight Link:
5-16 1/4, 5-16 1/2, 7-16 1/2, 9-16
\$8.77, 6.17, 5.02, 4.57, 4.37, 4.27, 4.22
% 1/2, 3/4, 1 1/4, 1 1/2, 1 3/4, 2
\$4.77, 4.07, 4.02, 4.12
In case lots, deduct 25¢.

German Coil:

6-0 to 1 70 @ 5¢ @ 70 @ 10¢
2 and 3 60 @ 10¢ @ 60 @ 10¢
4, 5 and 6 50 @ 10¢ @ 50 @ 10¢

Halter—

Halter Chains 60 @ 60 @ 5¢
German Pattern Halter Chains
List July 21, '97 60 @ 10¢ @ 5¢
Covert Mfg. Co. 35 @ 5¢
Halter 35 @ 5¢

Cow Ties—

See Halters and Ties.

Trace, Wagon, &c.—

Traces, Western Standard: 100 pr.
6 1/2-6-3, Straight, with ring, \$28.00
6 1/2-6-2, Straight, with ring, \$29.00
6 1/2-8-2, Straight, with ring, \$32.00
6 1/2-10-2, Straight, with ring, \$37.00
NOTE—Add 2¢ per pair for Hooks.
Twist Traces: add per pair for Nos. 2
and 3, 2¢; No. 1, 3¢; No. 3, 4¢ to price of
Straight Link.

Eastern Standard Traces, Wag-
on Chain, &c. 60 @ 10¢ @ 60 @ 10¢

Miscellaneous—

Jack Chain, list July 10, '93:
Iron 60 @ 10¢
Brass 60 @ 10¢
Safety and Plumbers' Chain,
60 @ 10¢
Gal. Pump Chain, lb. 4 1/4 @ 1 1/4
Covert Mfg. Co.:
Breast, Halter, Heel, Rein, Stal-
lion 40¢
Oneida Community:
American Halter, Dog and Kennel
Chains 35 @ 2 1/2 @ 40¢
Niagara Dog Leads and Kennel
Chains 45 @ 60 @ 5¢
Wire Goods Co.:
Dog Chain 70¢
Universal Dbl.-Jointed Chain 50¢

Chain and Ribbon, Sash—

Oneida Community:
Steel Chain 60¢
Pullman:
Bronze Chain, 60%; Steel Chain,
60 @ 10¢
Sash Chain Attachments, per set, \$4
Aluminum Sash Ribbon, per 100
ft. \$1.25 @ \$3.00
Sash Ribbon Attachments, per set, \$4

Chalk—(From Jobbers.)

Carpenters' Blue 50 @ 55¢
Carpenters' Red 45 @ 50¢
Carpenters' White 40 @ 45¢

Checks, Door—

Bardley's 45¢
Pullman, per gro. \$54.00
Russwin 33 1/2%

Chests, Tool—

American Tool Chest Co.:
Boys' Chests, with Tools 50¢
Youths' Chests, with Tools 25¢
Gentlemen's Chests, with Tools 25¢
Farmers', Carpenters', etc., Chests,
with Tools 20¢
Machinists' and Pipe Fitters'
Chests, Empty 45¢
Tool Cabinets 25¢
C. E. Jennings & Co.'s Machinists'
Tool Chests 7 1/2%

Chisels—

Socket Framing and Firmer
Standard List 75 @ 10¢
Huck Bros. 30¢
C. E. Jennings & Co.:
Socket Firmer No. 10 25 @ 7 1/2%
Socket Framing No. 15 25 @ 7 1/2%
Swan's 66 @ 70¢
L. & I. J. White Co. 30 @ 50 @ 5%

Tanged—

Tanged Firmers 30 @ 5 @ 35%
Huck Bros. 30¢
C. E. Jennings & Co. Nos. 101, 181 25¢
L. & I. J. White Co. 25 @ 5%

Cold—

Cold Chisels, good quality, 15 @ 15¢
Cold Chisels, fair quality, 11 @ 12¢
Cold Chisels, ordinary 9 @ 10¢

Chucks—

Almond Drill Chucks 35%
Almond Turret Six-Tool Chuck 40¢
Beach Pat., each \$8.00 35 @ 5¢
Empire 25¢
Blacksmiths' 25¢
Jacobs' Drill Chucks 25¢
Irate's Positive Drive 25¢
Skinner Patent Chucks:
Independent Lathe Chucks 35%
Universal, Reversible Jaws 35%
Combination, Reversible Jaws 35%
Drill Chucks, New Model, 25%:
Standard, 45%; Skinner Pat.,
25%; Positive Drive 40¢
Planer Chucks 30¢
Face Plate Jaws 35%
Standard Tool Co.:
Improved Drill Chuck 45%
Union Mfg. Co.:
Combination, Nos. 1, 2, 3, 4, 5, 6,
7, 8 and 17, 40%; No. 21 35%
Scroll Combination, Nos. 83 and
84 30%
Geared Scroll, Nos. 33, 34 and 35, 25%
Independent Iron, Nos. 18 and 318, 35%
Independent Steel, No. 61 25%
Union Drill, Nos. 600, 60, 100, 101,
102, 103, 104 25%
Union Gear Drill 25%
Universal, 11, 12, 16, 17, 13, 14, 15, 40%
Universal, No. 42 35%
Iron Face Plate Jaws, Nos. 28, 30,
44 and 50 35%
Steel Face Plate Jaws, Nos. 70 and
71 30%
Westcott Patent Chucks:
Lathe Chucks 50%
Little Giant Auxiliary Drill 50%
Little Giant Double Grip Drill 50%
Little Giant Drill, Improved 50%
Oneida Drill 50%
Scroll Combination Lathe 50%

Clamps—

Adjustable, Hammers 20 @ 20 @ 5%
Carriage Makers', P., S. & W.
Co. 50 @ 10¢
Resly, Parallel 33 @ 10¢
Myers' Hay Rack 45¢
Lineman's Swedish Neverturn 65¢
Wood Workers, Hammers 40 @ 10¢
Saw Clamps, see Vices, Saw Filers'

Cleaners, Drain—

Iwan's Champion, Adjustable 50¢
Iwan's Champion, Stationary 40¢

Sidewalk—

Star Socket, All Steel, 3/4 doz. \$4.05 net
Star Shank, All Steel, 3/4 doz. \$3.24 net
W. & C. Shank, All Steel, 3/4 doz.,
7 1/2 in., \$3.00; 8 in., \$3.25.

Cleavers, Butchers—

Foster Bros. 30%
Fayette R. Plumb 30%
L. & I. J. White Co. 30%

Clippers, Horse and**Sheep—**

Chicago Flexible Shaft Company:
1902 Chicago Horse, each, \$10.75
20th Century Horse, each, \$5.00
Lightning Belt Horse, each, \$15.00
Chicago Belt Horse, each, \$20.00
Stewart's Enclosed Gear
Horse, each \$1.75
Stewart's Patent Sheep Shear-
ing Machine, each \$12.75
Stewart Enclosed Gear Shear-
ing Machine, No. 8, each, \$9.75

Clips, Axle—

Regular Styles, list July 1, '05,
80 @ 80 @ 10%

Cloth and Netting, Wire**—See Wire, &c.****Cocks, Brass—**

Hardware List:
Plain Bibbs, Globe, Kerosene,
Racking, Liquor, Bottling,
&c. 70 @ —%
Compression Bibbs, 60 @ 10 @ —%

Coffee Mills—

See Mills, Coffee.

Collars, Dog—

Nickel Chain, Walter B. Stevens &
Son's list 35%
Leather, Walter B. Stevens & Son's
list 40%

Compasses, Dividers, &c.

Ordinary Goods 70 @ 10 @ 75%
Wm. Schollhorn Co.:
Excelsior Dividers 60%
Lodi Dividers 70 @ 10%

Conductor Pipe,—

L. C. L. to Dealers:
Galvanized Charcoal Copper.
Iron, 1 1/2, 1 3/4, 2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6, 6 1/2, 7, 7 1/2, 8, 8 1/2, 9, 9 1/2, 10, 10 1/2, 11, 11 1/2, 12, 12 1/2, 13, 13 1/2, 14, 14 1/2, 15, 15 1/2, 16, 16 1/2, 17, 17 1/2, 18, 18 1/2, 19, 19 1/2, 20, 20 1/2, 21, 21 1/2, 22, 22 1/2, 23, 23 1/2, 24, 24 1/2, 25, 25 1/2, 26, 26 1/2, 27, 27 1/2, 28, 28 1/2, 29, 29 1/2, 30, 30 1/2, 31, 31 1/2, 32, 32 1/2, 33, 33 1/2, 34, 34 1/2, 35, 35 1/2, 36, 36 1/2, 37, 37 1/2, 38, 38 1/2, 39, 39 1/2, 40, 40 1/2, 41, 41 1/2, 42, 42 1/2, 43, 43 1/2, 44, 44 1/2, 45, 45 1/2, 46, 46 1/2, 47, 47 1/2, 48, 48 1/2, 49, 49 1/2, 50, 50 1/2, 51, 51 1/2, 52, 52 1/2, 53, 53 1/2, 54, 54 1/2, 55, 55 1/2, 56, 56 1/2, 57, 57 1/2, 58, 58 1/2, 59, 59 1/2, 60, 60 1/2, 61, 61 1/2, 62, 62 1/2, 63, 63 1/2, 64, 64 1/2, 65, 65 1/2, 66, 66 1/2, 67, 67 1/2, 68, 68 1/2, 69, 69 1/2, 70, 70 1/2, 71, 71 1/2, 72, 72 1/2, 73, 73 1/2, 74, 74 1/2, 75, 75 1/2, 76, 76 1/2, 77, 77 1/2, 78, 78 1/2, 79, 79 1/2, 80, 80 1/2, 81, 81 1/2, 82, 82 1/2, 83, 83 1/2, 84, 84 1/2, 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Extractors, Lemon Juice

—See Squeezers, Lemon.

Fasteners, Blind—

Zimmerman's	50¢10%
Walling's	40¢10%
Upon's Patent	40%

Cord and Weight—

Ives and Titan	33½%
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Faucets—

Cork Lined	50¢10¢160%
Metallic Key, Leather Lined	60¢10¢70%

Red Cedar	40¢5¢10¢40¢5%
Petroleum	70¢10¢75%

Star	60¢10%
West Lock	50¢10%

John Sommer's Peerless Tin Key	50¢
John Sommer's Bow Tie Key	50¢

John Sommer's Victor Mtl. Key	50¢10%
John Sommer's Duplex Metal Key	50¢

John Sommer's Diamond Lock	40%
John Sommer's I. X. L. Cork Lined	50%

John Sommer's Reliable Cork Lined	50¢10%
John Sommer's Chicago Cork Lined	50%

John Sommer's O. K. Cork Lined	50%
John Sommer's No Brand, Cedar	50%

John Sommer's Perfection, Cedar	40%
Self Measuring	50%

Enterprise, ½ doz. \$36.00	40¢10%
Lane's, ½ doz. \$36.00	40¢10%

National Measuring, ½ doz. \$36.00	40¢10%
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Felloe Plates—

See Plates, Felloe.

Files— Domestic—

List Nov. 1, 1899.	
Best Brands	70¢10¢75¢10%

Standard Brands	75¢10¢80%
Lower Grade	75¢10¢100¢80%10%

Imported—

Stubs' Tapers, Stubs' Hat, July 24, '97	33 1-3¢40%
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Fixtures, Fire Door—

Allith Underwriters' Approved	50%
Richards Mfg. Co.	50%

Universal, No. 103; Special, No. 104	50%
Fusible Links, No. 96	50%

Expansion Bolts, No. 107	60¢10%
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Grindstone—

Net Prices:	
Inch	15 17 19 21

Per doz.	\$3.60 3.85 4.10 4.55
P. S. & W. Co.	25%

Leading Hardware Co.	60%
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Fodder Squeezers—

See Compressors.

Forks—

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Iowa Dig-Ezy Potato	60¢10%
Victor, Hay	50¢15¢24%

Victor, Manure	60%
Victor, Header	60%

Champion, Hay	60%
Champion, Header	60%

Champion, Manure	60¢15¢24%
Columbia, Hay	60¢20%

Columbia, Header	70%
Columbia, Spading	70¢12¢

Hawkeye Wood Barley	40%
W. & C. Potato Digger	60¢10%

Acme Hay	60¢10%
Acme Manure, 4 tubs	60¢10¢5%

Dakota Header	60¢20%
Jackson Steel Barley	60¢20%

Kansas Header	65%
W. & C. Favorite Wood Barley	40%

Plated.—See Spoons.	
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Frames— Wood Saw—

White, 8' g't Bar, per doz.	75¢80¢4
Red, 8' g't Bar, per doz.	1.00¢1.15

Red, Dbl. Brace, per doz.	1.10¢1.50
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Freezers, Ice Cream—

Qt.	1 2 3 4 6
Each	\$1.25 \$1.00 \$1.50 \$2.20 \$2.80

Fruit and Jelly Presses—

See Presses, Fruit and Jelly.

Fry Pans—See Pans, Fry.

Fuse— Per 1000 Feet.

Hemp	\$2.75
Cotton	3.20

Waterproof Spl. Taped	3.65
Waterproof Dbl. Taped	4.40

Waterproof Tpl. Taped	5.15
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Gates, Molasses and Oil—

Stebbins' Pattern	75¢80%
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Gauges—

Marking, Mortise, &c.	50¢50¢10%
Chapin-Stephens Co.	50%

Marking, Mortise, &c.	50¢50¢10%
Dixon's Marking, Mortise, &c.	67½%

Wire, Brown & Sharpe's	33½%
Wire, Morse's	25%

Gimlets— Single Cut—

Numbered assortments, per gro.

Nail, Metal, No. 1	\$2.00; 2. \$2.50
Spike, Metal, No. 1	\$4.00; 2. \$1.50

Nail, Wood Handled, No. 1	\$2.50; 2. \$2.00
Spike, Wood Handled, No. 1	\$1.50; 2. \$1.00

Glass, American Window

See Trade Report.

Glasses, Level—

Chapin-Stephens Co.	65¢65¢10%
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Glue, Liquid Fish—

Bottles or Cans, with Brush	25¢10¢50%
Elwell's	40%

Grease, Axle—

Common Grade	gro. \$6.00 @ 6.50
Dixon's Everlasting, 10-lb pails, ca.	\$6; in boxes, ½ doz., 1 lb., \$1.20

1 lb.	\$2.00
Helmet Hard Oil	25%

Griddles, Soapstone—

Pike Mfg. Co.	33½¢33½¢10%
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Grinders—

Royal Mfg. Co.	
Alumund Grinding Machines, each	

No. 01, \$1.75; 1A, \$2.50; 1B, \$3.00	30%
Alumund Sickle Grinders, each	

No. 20, \$5.00; 20A, \$6.00; 20B, \$6.50	30%
Combined, \$6.50	30%

Alumund Disc Grinders, each	
\$2.50	30%

Grindstones—

Pike Mfg. Co.	
Improved Family Grindstones, ½	

inch, ½ doz., \$2.00	33½%
Richards Mfg. Co., Ell and Cycle	

Ball Bearing, mounted	40%
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Grips, Nipple—

Perfect Nipple Grips	40¢10¢2%
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Halters and Ties—

Cow Ties	60¢5¢60¢10%
Covert Mfg. Co.	

Web	30¢2%
Jute Rope	35%

Sisal Rope	20%
Cotton Rope	45%

Hemp Rope	45%
Oneida Community	

Am. Coil and Halters	40¢40¢5%
Niagara Coil and Halters	45¢50¢5%

Niagara Cow Ties	45¢50¢60¢10¢5%
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Hammers—

Handled Hammers—	
Heller's Machinists	55¢100¢55¢10¢5%

Heller's Farriers	40¢45¢40¢10¢5%
Peck, Stow & Wilcox Co.	

Crucible Steel	50%
Farriers	40¢10¢5%

Riveting	50%
Machinists', revised list	60¢5%

Blacksmiths	50¢5%
Fryette H. Plumb	

A. E. Nail	40¢2½¢40¢12½%
Eug. and B. S. Hand	50¢10¢50¢60¢5%

Machinists' Hammers	60¢60¢10%
Rivet and Timmers	40¢7½¢40¢12½¢5%

Heavy Hammers and Sledges—

Under 3 lb., per lb.	50¢. 80¢50¢—%
3 to 5 lb., per lb.	40¢. 80¢60¢—%

Over 5 lb., per lb.	30¢—%
80¢10¢50¢—%	

Wilkinson's Smiths' ..	10. 9¢2¢10%
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Handles—

Agricultural Tool Handles	
Axe, Pick, &c.	60¢10¢100¢10¢5%

Hoe, Rake, &c.	40%
Fork, Shovel, Spade, &c.	40%

Long Handles	40%
D Handles	40%

Cross-Cut Saw Handles—

Alkalis	40%
Champion	50%

Dixson's	50%
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Mechanics' Tool Handles—

Auger, assorted	gro. \$3.00 @ \$3.50
Brad Acl.	gro. \$1.65 @ \$1.75

Chisel Handles, Ass'd, per gro.	
Tanged Firmer, Apple	\$2.40¢

\$2.55; Hickory	\$2.15¢\$2.40
Socket Firming, Apple	\$1.75¢

\$1.95; Hickory	\$1.60¢\$1.75
Socket Framing, Hickory	\$1.60¢\$1.75

File, assorted	gro. \$1.50 @ \$1.40
Hammer, Hatchet, &c.	

60¢10¢60¢10¢5%	
Hand Saw, Varnished, doz.	80¢85¢; Not Varnished. 65¢75¢

Plane Handles:

Jack, doz. 30¢; Jack, Bolted 75¢	
Fore, doz. 45¢; Fore, Bolted 90¢	

Chapin-Stephens Co.	
Carving Tool	30¢30¢10%

Chisel	60¢60¢10%
File and Awl	60¢60¢10%

Saw and Plane	30¢30¢10%
Screw Driver	30¢30¢10%

Millers Falls Adj. and Hatchet Auger	15¢10%
Henderson Simplicity File Handle	

Nicholson	30¢30¢10%
W. A. Zelnicker Supply Co.	

Hammer, ½ doz., 12 in.	\$2.00;
14 in.	\$2.00; 16 in.

18 in.	\$2.50; 20 in.
\$2.70; 22 in.	\$3.00; 24 in.

\$3.30; 26 in.	\$3.50; 30 in.
\$3.80	

Sledge

½ doz., oval, 30 in.	\$3.80;
octagon, 30 in.	\$3.80;

oval, 36 in.	\$4.00; octagon,
36 in.	\$4.00.

Axe ½ doz., 28 to 34 in.	\$5.00;
36 in.	\$5.90.

Adze, ½ doz., 36 in.	\$5.80; 36
in.	\$7.80.

Pick ½ doz., R. R.	36 in.,
\$8.00; coal, 34 in.	\$5.80.

Hatchet, ½ doz., 12 to 14 in.	\$2.00.
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Hangers—

NOTE.—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, &c.

Allith Mfg. Co.	
Reliable, Nos. 1 and 2; Allith, No.	3;

Hale & Benjamin Automatic Blind	Hinges
1	20%

Chicago Spring Butt Co.

Friction	25%
Oscillating	25%

Big Twin	25%
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Chisholm & Moore Mfg. Co.	
Baggage Car Door	50%

Elevator	30%
Railroad	50%

Cronk & Carrier Mfg. Co.	
Loose Axle	60¢2½%

Roller Bearing	70¢2½%
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Griffin Mfg. Co.	
Solid Axle, No. 10, \$12.00	60¢10%

Roller Bearing, No. 11, \$15.00	60¢10%
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Roller Bearing, Ex. Hy.	No. 22, \$18.00
Bull Dog	\$24.00

Lane Bros. Co.	
Parlor Ball Bearing	\$1.00;

Standard, \$3.15; No. 105, \$2.85;	
New Model, \$2.80; New Cham-	

pion	\$2.25
Barn Door, Standard	60¢10%

Hinged	net \$6.08
Covered	60¢5%

Special	70¢5%
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Lawrence Bros.	
Advance	55¢10%

Cleveland	70¢7½%
Clipper, No. 75	60%

Cages, Bird—

Hendryx Brass: Series 3000, 5000,
1100, net list; 1200, 15%; 200, 300,
500
Hendryx Bronze: Series 700, 800, 30%
Hendryx Enamelled.....35%

Calipers—See Compasses.**Calks, Toe and Heel—**

Blunt, 1 prong, per lb., 4 1/4 @ 4 3/4¢
Sharp, 1 prong, per lb., 4 1/4 @ 5 1/4¢
Burke's, Blunt, 4/4¢; Sharp, 4/4¢
Lautier, Blunt, 4/4¢; Sharp, 4/4¢
Perkins', Blunt, 3/4¢; Sharp, 4/4¢

Can Openers—

See Openers, Can.

Caps, Percussion—

Eley's E. B.50¢/55¢
G. D.per M 3 1/2¢/3 1/2¢
F. L.per M 4 1/2¢/4 1/2¢
G. E.per M 4 1/2¢/4 1/2¢
Muskettper M 6 1/2¢/6 1/2¢

Primers—

Berdan Primers, 2¢ per M. 20¢/5¢
Primer Shells and Bullets, 15¢/10¢
All other primers per M \$1.50¢/1.60

Carpet Stretchers—

See Stretchers, Carpet.

Cartridges—**Blank Cartridges:**

32 O. F., \$5.50.....10¢/5¢
28 O. F., \$7.00.....10¢/5¢
22 cal. Rim, \$1.50.....10¢/5¢
32 cal. Rim, \$2.75.....10¢/5¢
B. B. Caps, Con. Ball, Sec'd, \$1.90
B. B. Caps, Round Ball.....\$1.40
Central Fire.....25¢
Target and Sporting Rifle.....15¢/5¢
Primer Shells and Bullets.....15¢/10¢
Rim Fire, Sporting.....60¢
Rim Fire, Military.....15¢/5¢

Casters—

Bed65¢/10¢
Plate60¢/5¢
Philadelphia70¢/10¢
Acme, Ball Bearing.....35¢
Gem (Roller Bearing).....70¢/10¢/10¢/5¢
Steel Gem.....20¢
Standard Ball Bearing.....45¢
Yale (Double Wheel) low list, 40¢/10¢

Cattle Leaders—

See Leaders, Cattle.

Chain, Proof Coil—

American Coil, Straight Link:
5-16 1/4 6-16 3/4 7-16 1/2 9-16
\$8.77 6-17 5-02 4-57 4-37 4-27 4-22
3/4 1/2 1/4 1/4 1/4 1/4 1/4
\$4.17 4-07 4-02 4-12
In case lots, deduct 25¢.

German Coil:

6-0 to 1.....70¢/5¢ @ 70¢/10¢
2 and 3.....60¢/10¢ @ 60¢/10¢/5¢
4, 5 and 6.....50¢/10¢ @ 50¢/10¢/5¢

Halter—

Halter Chains.....60¢/60¢/5¢
German Pattern Halter Chains,
list July 21, '97.....60¢/10¢/5¢
Covert Mfg. Co.
Halter.....35¢/5¢

Cow Ties—

See Halters and Ties.

Trace, Wagon, &c.—

Traces, Western Standard: 100 pr.
6 1/4-6-3, Straight, with ring, \$28.00
6 1/4-6-2, Straight, with ring, \$29.00
6 1/4-8-2, Straight, with ring, \$32.00
6 1/4-10-2, Str't, with ring, \$37.00
NOTE—Add 2¢ per pair for Hooks.
Twist Traces: add per pair for Nos. 2
and 3, 2¢; No. 1, 3¢; No. 4, 4¢ to price of
Straight Link.

Eastern Standard Traces, Wag-
on Chain, &c. 60¢/10¢ @ 60¢/10¢/5¢

Miscellaneous—

Jack Chain, list July 10, '03:
Iron60¢/10¢
Brass60¢
Safety and Plumbers' Chain,
60¢/10¢
Gal. Pump Chain.....lb. 4 1/4 @ 4 3/4¢
Covert Mfg. Co.:
Breast, Halter, Heel, Rein, Stal-
lion.....40¢
Oneida Community:
American Halter, Dog and Kennel
Chains.....35¢/2¢ @ 40¢
Niagara Dog Leads and Kennel
Chains.....45¢/60¢/5¢
Wire Goods Co.:
Dog Chain.....70¢
Universal Dbl.-Jointed Chain.....50¢

Chain and Ribbon, Sash—

Oneida Community:
Steel Chain.....60¢
Pullman:
Bronze Chain, 60%; Steel Chain,
60¢/10¢
Sash Chain Attachments, per set, 3¢
Aluminum Sash Ribbon, per 100
ft.....\$1.25 @ \$3.00
Sash Ribbon Attachments, per set, 3¢

Chalk—(From Jobbers.)

Carpenters' Blue.....gro., 80¢/85¢
Carpenters' Red.....gro., 45¢/50¢
Carpenters' White.....gro., 40¢/45¢

Checks, Door—

Bardley's45¢
Pullman, per set.....\$4.00
Russwin33 1/2¢

Chests, Tool—

American Tool Chest Co.:
Boys' Chests, with Tools.....50¢
Youths' Chests, with Tools.....25¢
Gentlemen's Chests, w/o Tools.....25¢
Farmers' Carpenters' etc., Chests,
with Tools.....20¢
Machinists' and Pipe Fitters'
Chests, Empty.....45¢
Tool Cabinets.....45¢
C. E. Jennings & Co.'s Machinists'
Tool Chests.....75¢

Chisels—

Socket Framing and Firmer
Standard List.....75¢/10¢
Buck Bros.....30¢
C. E. Jennings & Co.:
Socket Firmer No. 10.....25¢/7 1/2¢
Socket Framing No. 15.....25¢/7 1/2¢
Swan's.....66¢/70¢
L. & I. J. White Co.....30¢/30¢/5¢

Tanged—

Tanged Firmers.....30¢/5¢/35¢
Buck Bros.....30¢
C. E. Jennings & Co. Nos. 101, 161, 25¢
L. & I. J. White Co.....25¢/5¢
Cold— lb.
Cold Chisels, good quality, 15¢/15¢
Cold Chisels, fair quality, 11¢/11¢
Cold Chisels, ordinary... 9¢/10¢

Chucks—

Almond Drill Chucks.....35¢
Almond Turret Six-Tool Chuck.....40¢
Beach Pat., each \$8.00.....35¢/5¢
Empire.....25¢
Blacksmiths'.....25¢
Jacobs' Drill Chucks.....25¢
Pratt's Positive Drive.....25¢
Skinner Patent Chucks.....25¢
Independent Lathe Chucks.....35¢
Universal, Reversible Jaws.....35¢
Combination, Reversible Jaws.....35¢
Drill Chucks, New Model, 25%;
Standard, 45%; Skinner Pat.
25%; Positive Drive.....10¢
Planer Chucks.....30¢
Face Plate Jaws.....25¢
Standard Tool Co.:
Improved Drill Chuck.....45¢
Union Mfg. Co.:
Combination, Nos. 1, 2, 3, 4, 5, 8,
7, 8 and 17, 40%; No. 21.....35¢
Scroll Combination, Nos. 83 and
84.....30¢
Geared Scroll, Nos. 33, 34 and 35.....25¢
Independent Iron, Nos. 18 and 19.....25¢
Independent Steel, No. 64.....25¢
Union Drill, Nos. 900, 90, 100, 101,
102, 103, 104.....35¢
Union Czar Drill.....25¢
Universal, 11, 12, 16, 17, 13, 14, 15, 40%
Universal, No. 42.....35¢
Iron Face Plate Jaws, Nos. 28, 30,
40 and 50.....35¢
Steel Face Plate Jaws, Nos. 70 and
72.....30¢
Westcott Patent Chucks:
Lathe Chucks.....50¢
Little Giant Auxiliary Drill.....50¢
Little Giant Double Grip Drill.....50¢
Little Giant Drill, Improved.....50¢
Oneida Drill.....50¢
Scroll Combination Lathe.....50¢

Clamps—

Adjustable, Hammers.....20¢/20¢/5¢
Carriage Makers', P., S. & W.
Co.....50¢/10¢
Reel, Parallel.....30¢/40¢
Myers' Hay Rack.....45¢
Lineman's Swedish Neverturn.....65¢
Wood Workers, Hammers.....40¢/10¢
Saw Clamps, see Vices, Saw Filers.

Cleaners, Drain—

Iwan's Champion, Adjustable.....50¢
Iwan's Champion, Stationary.....40¢

Sidewalk—

Star Socket, All Steel, 1/2 doz. \$4.05 net
Star Shank, All Steel, 1/2 doz. \$3.24 net
W. & C. Shank, All Steel, 1/2 doz.,
7 1/4 in., \$3.00; 8 in., \$3.25.

Cleavers, Butchers'—

Foster Bros.....30¢
Fayette R. Plumb.....30¢
L. & I. J. White Co.....30¢

Clippers, Horse and**Sheep—**

Chicago Flexible Shaft Company:
1902 Chicago Horse, each, \$10.75
20th Century Horse, each, \$5.00
Lightning Belt Horse, each, \$15.00
Chicago Belt Horse, each, \$20.00
Stewart's Enclosed Gear
Horse, each.....\$1.75
Stewart's Patent Sheep Shear-
ing Machine, each.....\$12.75
Stewart Enclosed Gear Shear-
ing Machine, No. 8, each, \$9.75

Clips, Axle—

Regular Styles, list July 1, '05,
80¢/60¢/10¢

Cloth and Netting, Wire

—See Wire, &c.

Cocks, Brass—

Hardware list:
Plain Bibbs, Globe, Keroene,
Racking, Liquor, Bottling,
&c.....70¢/2¢
Compression Bibbs, 60¢/10¢ @

Coffee Mills—

See Mills, Coffee.

Collars, Dog—

Nickel Chain, Walter B. Stevens &
Son's list.....40¢
Leather, Walter B. Stevens & Son's
list.....40¢

Compasses, Dividers, &c.

Ordinary Goods.....70¢/10¢/75¢
Wm. Schollhorn Co.:
Excelsior Dividers.....60¢
Lodi Dividers.....70¢/10¢

Conductor Pipe,—

L. O. L. to Dealers:
Galvanized Charcoal Copper.
Steel. Iron. 14, 16¢/80 oz.
Eastern:
70% 50¢/7 1/2¢ 45¢
Central:
70% 55¢ 40¢
Western and Southern:
65¢/10¢ 50¢/2 1/2¢ 40¢/5¢
So. Western
65¢/5¢ 45¢/5¢ 40¢/2 1/2¢
Terms, 60 days; 2% cash 10 days. Fac-
tory shipments generally delivered.
See also Eave Troughs.

Coolers, Water—

L. & G. Mfg. Co.:
Gal.....2 3 4 6 8
Galvanized, ea. \$1.85 \$2.00 \$2.25 \$2.50 \$3.00
Galvanized, Lined, side handles,
Gal.....3 4 6 8
Each.....\$1.95 \$2.15 \$2.40 \$2.50 \$4.15
White Enamelled.....30¢
Agate Lined.....10¢

Coopers' Tools—

See Tools, Coopers'.

Coppers' Soldering—

Soldering Coppers, 3 lbs. 10 pair
and heavier, 30¢/35¢; lighter
than 3 lb. 10 pair.....32¢/35¢

Cord— Sash—

Braided, Drab.....lb. 35¢
Braided, White, Com., Nos. 8
to 12, 25¢; No. 7, 25¢/2¢; No. 6,
27¢/2¢. In lots of 12 doz. or
over, 1 cent less per pound.
Cable Laid Italian, lb. No. 18.....37¢
Italian, lb., A, No. 18, 25¢; B, 22¢
Common India.....lb. 11¢/11¢
Cotton Sash Cord, Twisted, lb. 20¢
Patent Russia.....lb. 20¢
Cable Laid Russia.....lb. 21¢
India Hemp, Br'd'd.....lb. 13¢/14¢
India Hemp, Twisted.....lb. 17¢
Pearl Braided, cotton, No. 6, 10¢
2 1/2¢; No. 7, 25¢/2¢; Nos. 8 to 12,
25¢; 1, 25¢/2¢; 6, 27¢.
Harmony Cable Laid Italian, Nos. 7
to 10.....lb. 22¢
Pullman:
Wire Sash Cord.....10¢
Sash Cord Attachments, per doz. 10¢
Samsom, Nos. 8 to 12
Braided, 5¢; Drab Cotton,
55¢; Italian, Hemp, 40¢ @
50¢; Linen, 65¢; White Cot-
ton, 50¢; Spot Cord.....50¢
Massachusetts, White.....lb. 40¢
Massachusetts, Drab.....lb. 45¢
Phoenix, White, Nos. 8 to 12, 27¢
Silver Lake, per lb.:
A, Drab, 45¢; A, White, 40¢;
B, Drab, 40¢; B, White, 35¢;
Italian Hemp, 40¢; Linen.....57 1/2¢
See also Chain and Ribbon.

Wire, Picture—

List July 10, 1906.....90¢ @ %
Hendryx Standard Wire Picture Cord,
old list 85¢/10¢
Turner & Stanton Co. Wire Picture
Cord.....55¢/10¢

Cradles—

Grain.....40¢/12 1/2¢

Crayons—

White Round Crayons, Cases, 199
gro., \$6.50 @ \$7.50 at factory, but
lower prices made by jobbers
Zelnicke's Lumber.
White and Purple, Indelible.....\$7.50
Blue, Red, Green, Yellow and
Terra Cotta, \$6.50; Black.....\$4.00
Giant Lumber, 5 1/2 in. x 15-16 in.
round, all colors, \$16.25; Indeli-
bles.....\$18.75
Genuine Soapstone, Metal Workers',
5 in. x 4 in. Round, \$2.50; 5 in. x
3 1/4 in. Square, \$1.75; 5 x 1 1/2 x 3-16,
\$2.50; 5 x 1 1/4 x 3-16.....\$3.00

Crooks, Shepherds'—

Fort Madison, per doz., Heavy, \$5.50;
Light.....\$5.00

Crow Bars—See Bars, Crow.**Cultivators—**

Victor Garden.....50¢

Cutlery, Table—

International Silver Company:
No. 12 M'd'm Knives, 1817, 1/2 doz. \$3.50
Star, Eagle, Rogers & Hamilton
and Anchor.....1/2 doz. \$3.00
Wm. Rogers & Son.....1/2 doz. \$2.50

Cutters— Glass—

H. H. Mayhew Co.....60¢
Red Devil.....60¢
R. Mfg. Co.....40¢
Woodward.....50¢

Meat and Food—

American.....30¢
No. 401 402 403 404 405 406 407
Each \$5 \$7 \$10 \$12 \$15 \$50 \$60
Enterprise:
No. 1 10 12 22 32
Each \$2 \$3 \$2.75 \$1.50 \$6 25¢/5¢/4¢
No. 202 \$1.50.....40¢/7 1/2¢
P. S. & W. Co.:
Dixon's.....1/2 doz. 33 1/2¢
No. 1 \$14.00 \$17.00 \$19.00 \$20.00
Ideal.....40¢/40¢/5¢
Hales.....60¢/10¢/5¢
Little Giant.....1/2 doz. 40¢/50¢
No. 305 310 312 320 322
\$35.00 \$48.00 \$44.00 \$72.00 \$68.00
New Triumph No. 605, 1/2 doz. \$24.00
Russwin Food, No. 1, \$24.00; No. 2,
\$27.00.....45¢/10¢/10¢
Enterprise Beef Shavers.....\$15.00 \$19.00
\$25¢/30¢

Slaw and Kraut—

Henry Dinston & Sons:
Slaw and Kraut Cutters.....35¢
Corn Graters.....30¢
J. M. Mast Mfg. Co.:
Slaw Cutter, 1 Knife.....1/2 doz. \$3.00
Combined Slaw Cutter and Corn
Grater.....1/2 doz. \$4.00

Tobacco—

All Iron, Cheap.....doz. \$4.25 @ \$4.50
Enterprise.....doz. \$5.00
National, 1/2 doz., No. 1, \$21; No. 2,
\$18.....10¢

Diggers, Post Hole, &c.—

Dinston's:
Rapid, 1/2 doz., \$34.00.....25¢
Samsom, 1/2 doz., \$34.00.....25¢
Iwan's Improved Post Hole Auger, 40"
Vaughan Pattern Post Hole Auger,
1/2 doz., \$7.00
Perfection Post Hole Diggers, 1/2
doz., \$8.75
Split Handle Post Hole Diggers,
1/2 doz., \$7.75
Hercules Pattern, 1/2 doz., \$10.00
Kohler's, 1/2 doz., Universal, \$15.00;
Little Giant, \$12.00; Hercules,
\$10.00; Inflexible, \$9.00; Rival,
\$8.50; Pioneer, \$7.50
Never-Break Post Hole Diggers, 1/2
doz., \$24.00.....60¢

Dividers—See Compasses.**Drawing Knives—**

See Knives, Drawing.

Dressers, Emery Wheel—

Sterling Emery Wheel Dressers.....35¢
Sterling Wheel Dresser Cutters.....35¢

Drills and Drill Stocks—

Blacksmiths' Common Drilling
Machines.....\$1.50 @ \$1.75
Brest, Millers Falls.....\$1.10
Brest, P. S. & W.....33 1/2¢
Goodell Automatic Drills, 50¢/10¢/10¢
Millers Falls Automatic Drills, 50¢/10¢
Hatchett, Curtis & Curtis.....40¢
Hatchett, Parker's.....40¢
Hatchett, Weston's.....40¢
Hatchett, Weston's, Style H Im-
proved.....40¢
Hatchett, No. 812.....40¢
Hatchett, Celebrated.....40¢
Hatchett, Whitney's, P. S. & W.,
\$0.45
Whitney's Hand Drill, No. 1, \$0.40;
Adjustable, No. 10, \$12.00.....33 1/2¢

Twist Drills—

Bit Stock.....60¢/10¢/10¢/70¢
Taper and Straight Shank.....
60¢/10¢/60¢/10¢/5¢

Drivers, Screw—

Screw Driver Bits, per doz. 45¢ @ 50¢
Balsey's Screw Holder and Driver, 1/2
doz., 2 1/2-in., \$6; 4-in., \$7.50; 6-in.,
\$9
Buck Bros' Screw Driver Bits.....50¢
Champion.....50¢
Dinston's.....70¢
Fray's Hol. H'die Sets, No. 3, \$12.50
Ford's Brace Screw Drivers.....40¢/10¢
Gage's Double Action Ratchet.....25¢
Goodell's Auto.....55¢/65¢/10¢
Mayhew's Black Handle.....40¢
Mayhew's Monarch.....40¢
Millers Falls, Nos. 20 and 21.....25¢/10¢
Millers Falls, Nos. 11, 12, 41, 42, 15¢/10¢
Smith & Hemenway Co., Never-
turn, 65%; Elmora, 60%; Star,
30¢/10¢
Swan's:
Nos. 7565 to 7568, 50%; No. 7540,
40¢/10¢

Eave Trough, Galvanized—

Territory. L. C. L. Galvanized
Galv. Charcoal Copper.
Steel. Iron. 14, 16¢/80 oz.
Eastern:
75¢/5¢ 60¢/10¢ 45¢
Central:
75¢/10¢ 65¢ 45¢
Western and Southern:
75¢ 60¢/5¢ 40¢/5¢
So. Western:
70¢/10¢ 55¢/7 1/2¢ 42 1/2¢

Terms—2% for cash. Factory ship-
ments generally delivered.
See also Conductor Pipes and Elbows

Elbows and Shoes—

Factory shipments, all territories:
Galv. Steel and Galv. C. I.
Standard Gauge.....80¢
No. 25.....50¢
No. 21.....25¢
No. 22.....20¢
Copper.....50¢/10¢

Elbows, Stove Pipe—

Edwards, Standard Rine.....60¢/10¢/10¢
Edwards, Royal Rine.....60¢/10¢/10¢
Reeves, Dover, one piece.....60¢/10¢

Emery, Turkish—

4 to 54 to
45: 220: Flour.
45 Keps.....lb. 5 1/4¢ 5 1/4¢ 3 1/4¢
45 Keps.....lb. 5 1/4¢ 5 1/4¢ 3 1/4¢
10-lb. cans.....6 1/4¢ 7 1/4¢ 6 1/4¢
10-lb. cans, less
than 10.....10¢ 10¢ 8¢
Less quantity. 10¢ 10¢ 8¢
NOTE—In lots 1 to 3 tons a discount
of 10% is given.

Extractors, Lemon Juice—See *Squeezers, Lemon.***Fasteners, Blind—**

Zimmerman's 50¢10¢
 Walling's 60¢10¢
 Upson's Patent 40¢

Cord and Weight—

Ives and Titah 33½¢

Faucets—

Cork Lined 50¢10¢60¢
 Metallic Key, Leather Lined 60¢10¢70¢

Red Cedar 40¢5¢10¢10¢5¢
 Petroleum 70¢10¢75¢

B. & L. B. Co. 60¢10¢

Star 60¢10¢

West Lock 60¢10¢

John Sommer's Perfect Tin Key 40¢

John Sommer's Bow Tie Key 50¢

John Sommer's Victor Mfg. Key 50¢10¢

John Sommer's Duplex Metal Key 60¢

John Sommer's Diamond Lock 40¢

John Sommer's I. X. L. Cork Lined 50¢

John Sommer's Reliable Cork Lined 60¢10¢

John Sommer's Chicago Cork Lined 60¢

John Sommer's O. K. Cork Lined 50¢

John Sommer's No Brand, Cedar 50¢

John Sommer's Perfection, Cedar 40¢

Self Measuring, # doz. \$36.00 60¢10¢

Lane's, # doz. \$36.00 40¢10¢

National Measuring, # doz. \$36.00 40¢10¢

Felloe Plates——See *Plates, Felloe.***Files— Domestic—**

List Nov. 1, 1899.

Best Brands 70¢10¢75¢10¢

Standard Brands 75¢10¢90¢

Lower Grade 75¢10¢100¢80¢10¢

Imported—

Stubs' Tapers, Stubs' List, July 24, '97 35¢1-3¢40¢

Fixtures, Fire Door—

Allith Underwriters' Approved 50¢

Richards Mfg. Co., 103; Special, No. 104 33.75

Expandable Links, No. 96 60¢

Expansion Bolts, No. 107 60¢10¢

Grindstone—

Net Prices: 15 37 19 21

Per doz. \$3.50 5.85 4.45 4.65

P. S. & W. Co. 25¢

Leading Hardware Co. 60¢

Fodder Squeezers——See *Compressors.***Forks—**

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Iowa Dig-Ery Potato 60¢10¢

Victor, Hay 60¢15¢24¢

Victor, Manure 60¢

Victor, Header 60¢

Champion, Hay 60¢

Champion, Header 60¢

Champion, Manure 60¢15¢24¢

Columbia, Hay 60¢20¢

Columbia, Manure 60¢12¢

Hawkeye Wood Barley 40¢

W. & C. Potato Digger 60¢10¢

Acme Hay 60¢20¢

Acme Manure, 4 tins 60¢10¢5¢

Dakota Header 60¢20¢

Jackson Steel Barley 60¢20¢

Kansas Header 60¢

W. & C. Favorite Wood Barley 40¢

Plated.—See *Spoons.*

Frames— Wood Saw—

White, 8' 6" Bar, per doz. 75¢80¢

Red, 8' 6" Bar, per doz. \$1.00¢1.25

Red, 8' 6" Bar, per doz. \$1.00¢1.50

Freezers, Ice Cream—

Qt. 1 3 3 4 8

Each \$1.25 \$1.60 \$1.90 \$2.20 \$2.50

Fruit and Jelly Presses——See *Presses, Fruit and Jelly.***Fry Pans—See *Pans, Fry.*****Fuse—**

Per 1000 Feet.

Hemp \$2.75

Cotton 3.50

Waterproof Spl. Taped 4.50

Waterproof Dbl. Taped 5.60

Waterproof Tpl. Taped 5.75

1048½¢

Gates, Molasses and Oil—

Stebbins' Pattern 75¢80¢

Gauges—

Marking, Mortise, &c. 50¢50¢10¢

Chapin-Stephens Co. 50¢50¢10¢

Marking, Mortise, &c. 50¢50¢10¢

Dixon's Marking, Mortise, &c. 67½¢

Wire, Brown & Sharpe's 33½¢

Wire, Morse's 25¢

Wire, P. S. & W. Co. 35½¢

Gimlets— Single Cut—

Numbered assortment, per gross.

Nail, Metal, No. 1, \$2.00; 2, \$2.50

Spike, Metal, No. 1, \$1.00; 2, \$1.50

Nail, Wood Handled, No. 1, \$2.50; 2, \$2.80

Spike, Wood Handled, No. 1, \$1.50; 2, \$1.80

21.90; 2, \$1.80

Glass, American Window—See *Trade Report.***Glasses, Level—**

Chapin-Stephens Co. 65¢65¢10¢

Glue, Liquid Fish—

Bottles or Cans, with Brush 55¢10¢50¢

Elwell's 40¢

Grease, Axle—

Common Grade gro. \$6.00 @ 6.50

Dixon's Everlasting, 10-lb. pails, ea. 55¢; in boxes, # doz., 1 lb., \$1.20

2 lb. \$2.00

Helmet Hard Oil 25¢

Griddles, Soapstone—

Pike Mfg. Co. 33½¢33½¢10¢

Grinders—

Royal Mfg. Co. 30¢

Alumund Grinding Machines, each, Nos. 01, \$1.75; 1A, \$1.50; 10, \$5.00

Alumund Stone Grinders, each, Nos. 20, \$5.00; 20A, \$6.30; 20B, \$6.50

Combined, \$6.50 30¢

Alumund Disc Grinders, each, \$2.50 30¢

Grindstones—

Pike Mfg. Co. 33½¢

Improved Family Grindstones, # inch, # doz., \$2.00 33½¢

Richards Mfg. Co., Eli and Cycle, Ball Bearing, mounted 40¢

Grips, Nipple—

Perfect Nipple Grips 40¢10¢2¢

Halters and Ties—

Cow Ties 60¢5¢60¢10¢

Web 30¢2¢

Jute Rope 35¢

Sisal Rope 20¢

Cotton Rope 45¢

Hemp Rope 45¢

Quebec Community, Am. Coil and Halters 40¢10¢5¢

Am. Cow Ties 45¢60¢

Niagara Coil and Halters 45¢50¢45¢

Niagara Cow Ties 45¢50¢10¢45¢

Hammers—

Handled Hammers—

Heller's Machinists' 55¢100¢50¢10¢5¢

Heller's Farmers' 40¢35¢40¢10¢45¢

Peck, Stow & Wilcox Co. 50¢

Crucible Steel 50¢

Farmers' 40¢10¢45¢

Riveting 50¢

Machinists', revised list 60¢45¢

Blacksmiths' 50¢45¢

Fayette H. Munn, A. E. Nail 40¢25¢40¢12½¢

Eag. and B. S. Hand, 50¢10¢50¢60¢45¢

Machinists' Hammers 60¢10¢10¢

Rivet and Timers 40¢75¢40¢12½¢45¢

Heavy Hammers and Sledges—

Under 5 lb., per lb., 50¢. 80¢45¢10¢

5 to 10 lb., per lb., 40¢. 80¢45¢10¢

Over 10 lb., per lb., 30¢. 80¢10¢50¢10¢

Wilkinson's Smiths'—

See *Trade Report.*

Handles—

Agricultural Tool Handles

Ace, Pick, &c. 60¢10¢60¢10¢45¢

Hoe, Rake, &c. 40¢

Fork, Shovel, Spade, &c. 40¢

Long Handles 40¢

D Handles 40¢

Cross-Cut Saw Handles—

Alumund 40¢

Champion 50¢

Clinton's 50¢

Mechanics' Tool Handles—

Auger, assorted gro. \$3.00 @ \$3.50

Brad Axl. gro. \$1.55 @ \$1.75

Chisel Handles, Ass'd, per gro. \$2.00

Tongard Firmer, Apple, \$2.40 @ \$2.65

Hickory, \$2.15 @ \$2.40

Socket Firming, Apple, \$1.75 @ \$1.95

Hickory, \$1.60 @ \$1.75

Socket Framing, Hickory, \$1.60 @ \$1.75

File, assorted gro. \$1.30 @ \$1.40

Hammer, Hatchet, &c. 60¢10¢60¢10¢45¢

Hand Saw, Varnished, doz.

80¢45¢; Not Varnished 65¢75¢

Plane Handles—

Jack, doz. 30¢; Jack, Bolted 75¢

Fore, doz. 45¢; Fore, Bolted 90¢

Chapin-Stephens Co. 30¢20¢10¢

Cheering Tool 40¢60¢10¢

File and Axl. 60¢60¢10¢

Saw and Plane 30¢30¢10¢

Screw Driver 30¢30¢10¢

Millers Falls Adj. and Hatchet Auger Handles 15¢10¢

Nicholson Simplicity File Handle 30¢

W. A. Zelnicker Supply Co., Hammer, # doz., 12 in., \$2.00; 14 in., \$2.00; 16 in., \$2.30; 18 in., \$2.50; 20 in., \$2.70; 22 in., \$3.00; 24 in., \$3.30; 26 in., \$3.50; 30 in., \$3.80

Sledge, # doz., oval, 30 in., \$3.80; octagon, 30 in., \$3.80; oval, 36 in., \$4.00; octagon, 36 in., \$4.00

Axe # doz., 25 to 34 in., \$3.50; 36 in., \$3.80

Adze, # doz., 36 in., \$5.80; 36 in., \$5.80

Pick, # doz., R. R. 36 in., \$8.00; coal, 34 in., \$5.80

Hatchet, # doz., 12 to 18 in., \$2.00

Hangers—

NOTE.—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, &c.

Allith Mfg. Co. 30¢

Reliable, Nos. 1 and 2; Allith, No. 3; Allith Adjustable, No. 6; Reliable Parlor Door 30¢

Chicago Spring Butt Co.

Friction 25¢

Oscillating 31¢

Big Twin 31¢

Chisholm & Moore Mfg. Co. 50¢

Baggage Car Door 30¢

Elevator 30¢

Railroad 30¢

Cronk & Carrier Mfg. Co. 60¢2½¢

Loose Axle 60¢2½¢

Roller Bearing 70¢2½¢

Griffin Mfg. Co. 60¢10¢

Solid Axle, No. 10, \$12.00, 60¢10¢

Roller Bearing, No. 11, \$15.00, 60¢10¢

Roller Bearing, Ex. Hf., No. 2, \$18.00, 60¢10¢

Roller Bearing, Ex. Hf., No. 3, \$24.00, 60¢10¢

Lane Bros. Co. 60¢10¢

Parlor, Ball Bearing, \$1.00; Standard, \$1.15; No. 105, \$2.85; New Model, \$1.90; New Champion, \$2.25

Barn Door, Standard 60¢10¢

Hinged net \$6.00

Covered 60¢45¢

Special 70¢45¢

Lawrence Bros. 55¢10¢

Advance 55¢10¢

Cleveland 60¢

Clipper, No. 75 55¢10¢

Crown 55¢10¢

Cyclone, No. 40 net \$6.50

Tandem, No. 50 net \$7.50

New York 55¢10¢

McKinney Mfg. Co. 60¢

Roller Bearing, Nos. 1 and 2, 70¢

Hinged Hangers, King Charm, 60¢

Richards Mfg. Co. 60¢

Hangers, Nos. 47, 48, 147, 247, 60¢45¢

Pioneer Wood Track, No. 3, \$2.25

Roller Brg. St'l Track No. 12, \$2.50

Saws—

Atkins':	
Circular	45%
Band	50@50&10%
Butcher Saws	50%
Cross Cut	40%
One-Man Cross Cut	40%
Narrow Cross Cut	50%
Hand, Rip and Panel	35&5%
Miter Box and Compass	40%
Mulay, Mill and Drag	45%
Wood Saws	40&10%
Chapin-Stephens Co.:	
Turning Saws and Frames	30@30&10%
Diamond Saw & Stamping Works:	
Sterling Kitchen Saws	30&10&10%
Disston's:	
Circular, Solid and Ins'ted Tooth	50%
Band, 2 to 18 in. wide	50%
Band, 1/4 to 1 1/2	50%
Crosscuts	45%
Narrow Crosscuts	50%
Mulay, Mill and Drag	45%
Framed Woodsaws	25%
Woodsaw Blades	15%
Woodsaw Rods, Tinned	15%
Hand Saws, Nos. 12, 9, 9, 16, d100	25%
D8, 120, 76, 77, 8	25%
Hand Saws, Nos. 7, 107, 107 1/2, 3, 1	30%
0, 0, Combination	30%
Compass, Key Hole, & Saw	30%
Butcher Saws and Blades	30%
C. E. Jennings & Co.'s:	
Back Saws	16%
Butcher Saws	25&7 1/2%
Compass and Key Hole Saws	33&7 1/2%
Framed Wood Saws	25&7 1/2%
Hand Saws	12%
Wood Saw Blades	33&7 1/2%
Millers Falls:	
Butcher Saws	15&10%
Star Saw Blades	15&10%
Massachusetts Saw Works:	
Victor Kitchen Saws	40&10&50%
Butcher Saws and Blades	35&40%
Peace & Richardson's Hand Saws	30%
Simonds':	
Circular Saws	45%
Crescent Ground Cross Cut Saws	30%
One-Man Cross Cuts	40&10%
Gang Mill, Mulay and Drag Saws	45%
Band Saws	50%
Back Saws	25&7 1/2%
Butcher Saws	35&7 1/2%
Hand Saws	25&7 1/2%
Hand Saws, Bay State Brand	45%
Compass, Key Hole, & Saw	25&7 1/2%
Wood Saws	40&7 1/2%
Wheeler, Madden & Clemens Mfg. Co.'s Cross Cut Saws	50%

Hack Saw Blades and Frames—

Atkins' Hack Saw Blades A A A	25%
Disston's:	
Concave Blades	25%
Keystone Blades	30%
Hack S. Frames	35%
Simonds' File Co.	35%
C. E. Jennings & Co.'s:	
Hack Saw Frames, Nos. 175, 180	40&7 1/2%
Hack Saws, Nos. 175, 180, complete	40&7 1/2%
Goodell's Hack Saw Blades	40&10%
Griffin's Hack Saw Frames	35&5&10%
Griffin's Hack Saw Blades	35&5&10%
Star Hack Saws and Blades	15&10%
Sterling Hack Saw Blades	30&10&5%
Sterling Hack Saw Frames	30&10&5%
Sterling Power Hack Saw Machine	each, No. 1, \$25.00; No. 2, \$30.00, 10%
Victor Hack Saw Blades	30%
Victor Hack Saw Frames	40%

Scroll—

Barnes, No. 7, \$15	25%
Barnes' Scroll Saw Blades	40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, \$30	25%
with boring attachment, \$30	25%
Lester, complete, \$10.00	40%
Rogers, complete, \$3.50 and \$4.00	15&10%

Scales—

Family, Turnbull's	50@50&10%
Counter:	
Hatch, Platform, 1/2 oz. to 4 lbs.	doz., \$5.50
Tico Platforms, 1/2 oz. to 8 lbs.	doz., \$16.00
Union Platform, Plain	\$1.70@1.90
Union Platform, Std.	\$1.85@2.15
Chatillon's:	
Eureka	25%
Favorite	40%
Crocker's Trip Scales	50%
The Standard Portable	40%
The Standard R. R. and Warehouse	50&10%

Scrapers—

Boz, 1 Handle	doz. \$2.00@2.25
Boz, 2 Handle	doz. \$2.50@2.80
Ship, Light	\$2.00; Heavy, \$1.50
Chapin-Stephens Co., Box	30@30&10%
Richards Mfg. Co., Foot	60%

Screws—Bench and Hand

Bench, Iron, doz., 1 in.	\$2.50@2.75
2.75; 1 1/4, \$3.00@3.25; 1 1/2, \$3.50@3.75	
Bench, Wood	20@20&10%
Hand, Wood	70&10@70&10&10%
Chapin-Stephens Co., Hand	70&10&10&2 1/2%

Coach, Lag and Hand Rail—

Lag, Cone Point	75&10&10%
Coach, Gimlet Point	75&10&5%
Hand Rail	70&10@75%

Jack Screws—

Standard List	70&10@75%
Millers Falls	50&10&10%
Swett Iron Works	70&75%

Machine—

List Jan. 1, '98:	
Flat or Round Head, Iron	50@50&10%
Brass or Bronze	50@50&10%
Fillister Head, Iron, Brass or Bronze	40@40&10%

Set and Cap—

Set (Iron)	75&10&7 1/2%
Set (Steel), net advance over Iron	25%
Sq. Hd. Cap	70&10&7 1/2%
Hex. Hd. Cap	70&10&7 1/2%
Rd. Hd. Cap	50&7 1/2%
Fillister Hd. Cap	60&7 1/2%

Wood—

List July 23, 1905:	
Flat Head, Iron	87&45@
Round Head, Iron	85&5@
Flat Head, Brass	80&5@
Round Head, Brass	77&45@
Flat Head, Bronze	75&5@
Round Head, Bronze	72&45@
Drive Screws	87&45@

Scroll Saws—

See Saws, Scroll.

Scythes—

Per doz.

Grass, No. 1, Plain	\$6.25@6.75
Clipper, Bronzed Webb	\$6.50@7.00
No. 3 Clipper, Pol'd Webb	
	\$6.75@7.25
No. 6 Clipper and Solid Steel	\$7.00@7.50
Bush, Weed and Bramble, No. 2	\$6.50@7.00
Grain, No. 1	\$8.25@8.75
Bronzed Webb, No. 1	\$8.50@9.00
Nos. 3 and 4 Clipper, Grain	
	\$8.75@9.25
Solid Steel, No. 6	\$9.25@9.75

Seeders, Raisin—

Enterprise	25@30%
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Sets—Awl and Tool—

Fray's Adj. Tool Handles, Nos. 1, \$12; 2, \$18; 3, \$12; 4, \$9; 5, \$7	50%
Millers Falls Adj. Tool Handles, Nos. 1, \$12; No. 4, \$12; No. 5, \$18, 20&10%	

Garden Tool Sets—

Ft. Madison Three Plows, Hoe, Rake and Shovel	\$9 doz. \$9.00
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Sets, Nail—

Octagon	gro. \$3.50@3.75
Buck Bros.	27 1/2%
Cannon's Diamond Point	\$9 doz. \$12, 40&10%
Mayhew's	\$9 doz. \$9.00
Snell's Corrugated, Cup Pt.	40&10%
Snell's Knurled, Cup Pt.	40&10%
Victor Knurled Cup Pt.	\$9 doz. \$7.50

Rivet—

Regular list	75@75&10%
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Saw—

Atkin's:	
Criterion	40%
Adjustable	40%
Disston's Star, Monarch and Triumph	30%
Morrill's No. 1	\$15.00
Nos. 3 and 4, Cross Cut	\$20.60
No. 6, Mill	\$30.99
Nos. 10, 11, 36	\$15.50
No. 1 Old Style	\$10.00
Special	\$16.25
Giant Royal Cross Cut	\$9 doz. \$8.00
Royal, Hand	\$9 doz. \$4.50
Taintor Positive	\$9 doz. \$4.75

Shaving—

Fox Shaving Sets, No. 30	doz. net, \$24.00
Smith & Hemenway Co.'s	75%

Sharpeners, Knife—

Pike Mfg. Co.:	
Fast Cut Pocket Knife Hones	\$1.50
Mounted Kitchen Sand Stone	\$1.50
Natural Grit Carving Knife Hones	\$3.00
Quick Cut Emery Carving Knife Hones	\$1.50
Quick Edge Pocket Knife Hones	\$2.00

Skate—

Smith & Hemenway Co., Eureka	50%
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Shaves, Spoke—

Iron	doz. \$1.10@1.25
Wood	doz. \$1.75@2.25
Bailey's (Stanley R. & L. Co.)	45%
Chapin-Stephens Co.	30@30&10%
Goodell's	\$9 doz. \$9.00, 15&10%

Shears—

Cast Iron.. 7 8 9 in.	
Best	\$16.00 18.00 20.00 gro.
Good	\$13.00 15.00 17.00 gro.
Cheap	\$5.00 6.00 7.00 gro.
Straight Trimmers, &c.	
Best quality Jap.	70@70&10%
Best quality, Nickel	60@60&10%
Tailors' Shears	40@40&10%
Acme Cast Shears	40@40&5%
Heinisch's Tailors' Shears	10%
Wilkinson Shear & Cutlery Co.	
Sheep, 1900 list	30&10&5%
Grass	50&10%
Horse or Mule	50&10%

Tinners' Snips—

Steel Blades	20&5@20&10%
Steel Laid Blades	40&10@50%
Forged Handles, Steel Blades, Berlin	50%
Heinisch's Snips	40%
Jennings & Griffin Mfg. Co.'s	6% to 10 in.
Niagara Snips	33&4&7 1/2%
P. S. & W. Forged Handles	40%
W. R. W.	50&10%

Pruning Shears—

Cronk's Hand Shears	33 1/4%
Cronk's Wood Handle Shears	33 1/4%
Disston's Combined Pruning Hook and Saw	\$18.00, 25%
Disston's Pruning Hook only	\$12.00, 25%
John T. Henry Mfg. Co.	40%
Pruning Shears, all grades	40%
P. S. & W. Co.	40&10%
Columbian Cutlery Co.	
Hedge, Wilcut Brand	60&10%
Lawn and Border, Wilcut Brand	60&10%

Sheaves—Sliding Door—

Reading	40%
R. & E. list	15%

Sliding Shutter—

Reading list	40%
R. & E. list	10%

Shells—Shells, Empty—

Brass Shells, Empty:	
Climax, 10 and 12 gauge	65&10%
Club, Rival, 65&5%; First Quality	60&5%

Paper Shells, Empty:

New Rapid, 10, 12, 16 and 20 gauge	25&10%
Climax, 10 and 12 gauge; Acme, 10, 12, 16 and 20 gauge; Ideal, 10, 12, 16 and 20 gauge; Leader grade	25&5%
Union, League, 12 and 12 gauge; Rival grade	25&5%
New Climax, Deafness, 10, 12, 14, 16 and 20 gauge; Climax, 14, 16 and 20 gauge	20&5%
Challenge, Monarch, 10, 12, 16 and 20 gauge; League, Union, 14, 16 and 20 gauge; Repeater Grade	20%
Expert, 10, 12, 16 and 20 gauge	33&5%

Shells, Loaded—

Loaded with Black Powder	40%
Loaded with Smokeless Powder, medium grade	40&5%
Loaded with Smokeless Powder, high grade	40&10&10%
Union Metallic Cartridge Co.:	
Nitro Club, Black Powders	40%
Nitro Club, Smokeless Powders	40&5%
Arrow, Smokeless Powders	40&10&10%
Winchester:	
Smokeless Repeater Grade	40&5%
Smokeless Leader Grade	40&10&10%
Black Powder	40%

Shingles, Metal—Per Sq.

Edwards Mfg. Co.:	
Painted	
Galv.	
14 x 20	\$4.25 \$6.00
10 x 14	\$4.50 \$6.25
7 x 10	\$4.75 \$6.50
Wheeling Corrugating Co.:	
Dixie, 14 x 20 in.	\$4.25 \$5.50
Dixie, 10 x 14 in.	\$4.50 \$6.00
Dixie, 7 x 10 in.	\$5.00 \$6.75

Shoes, Horse, Mule, &c.—

F.o.b. Pittsburgh:	
Iron	per keg \$4.10
Steel	per keg \$3.85
Burden's, all sizes	per keg \$3.90

Shot—

Drop, up to 2	25-lb. bag, \$1.95
Drop, B and larger	2.20
Ruck	2.20
Chilled	2.20
Dust	2.40

Shovels and Spades—

Association List, Nov. 15, 1902	40%
Avery Stamping Co.	40%

Snow Shovels—

Long Handle	\$3.25 @ \$3.50
Wood and Mail, D. Handle	\$3.75 @ \$4.00

Sieves and Sifters—

Hunter's Imitation	gro. \$9.50@10.00
Hunter's Genuine	per gro. \$12.00@12.50

Sifters, Ash—

Acme Ball Bearing Sales Co., Acme Automatic Ash Sifter, each	\$3.25
\$9 doz.	\$39.00

Sieves, Seamless Metallic

Mesh	14 16 18 20
Iron Wire	\$1.05 1.05 1.10 1.20
Tinned Wire	\$1.15 1.15 1.20 1.30

Sieves, Wooden Rim—

Nested, 10, 11 and 12 inch	
Mesh 18, Nested	doz. \$0.90@0.95
Mesh 20, Nested	doz. \$1.00@1.05
Mesh 24, Nested	doz. \$1.10@1.15

Sinks, Cast Iron—

Painted, Standard list:	
12 x 12 to 22 x 36 in.	60%
20 x 40 to 24 x 50 in.	50%
24 x 60 to 24 x 120 in.	30%
Barnes' low list:	
Up to and including 20 x 36 in.	50%
20 x 40 to 24 x 50 in.	45%
NOTE—There is not entire uniformity in lists used by jobbers.	

Skins, Wagon—

Cast Iron	70@75&10%
Steel	40@45%

Slates, School—

Factory Shipments:	
"D" Slates	50&50&10%
Eureka, Unexcelled Notebooks	60&5 tens
Victor A, Noiseless	60&5 tens 45%

Slaw Cutters—See Cutters.**Snaps, Harness—**

German	40@40&10%
Covert Mfg. Co.:	
Derby, 25%; Yankee, 30&2%; Yankee Roller, 30&2%	
High Grade, 40%; Trojan	45%
Jockey	25%

Snaths—

Scythe	55@60%
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Snips, Tinners—See Shears.**Spoons and Forks—****Silver Plated—**

Good Quality	50&10@60&5%
Cheap	60@60&10%
International Silver Co.	
1847 Rogers Bros., 40&10%; Rogers & Hamilton	50&10%
Rogers & Bro., William Rogers	50&10%
Eagle Brand	50&10%
Anchor Rogers Brand	60%
Wm. Rogers & Son	50&10%

Miscellaneous

German Silver	60@60&5%
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Tinned Iron—

Tens	per gro. \$0.50@55¢
Tables	per gro. \$0.90@1.00

Springs—Door—

Bardsley's Spring and Check.....	40%
Chicago (Coil).....	40 & 10
Gem (Coil).....	20
Pullman (Coil).....	35
Reliance (Coil).....	40 & 10
Star (Coil).....	30
Torrey's Rod, 39 in.....	39 doz. \$1.10

Scythe Stones—

Pike Mfg. Co., 1901 list:	
Black Diamond S. 8.	gro. \$12.00
Lamotte S. 8.	gro. \$11.00
White Mountain S. 8.	gro. \$9.00
Green Mountain S. 8.	gro. \$8.00
Extra Indian Pond S. 8.	gro. \$7.50
No. 1 Indian Pond S. 8.	gro. \$7.00
No. 2 Indian Pond S. 8.	gro. \$6.50
Leader Red End S. 8.	gro. \$4.50
Quick Cut Emery.	gro. \$10.00
Pure Corundum.	gro. \$18.00
Crescent	gro. \$7.00
Emery Scythe Rifles, 2 Coat.	\$8
Emery Scythe Rifles, 4 Coat.	\$10
Emery Scythe Rifles, 4 Coat.	\$12
Balance of 1904 list 3 1/2%	
Electro (Artificial).	gro. \$12.00
Lightning (Artificial).	gro. \$18.00
	3 1/2%

Stoppers, Bottle—

Victor Bottle Stoppers.	gro. \$9.00
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Stops—Bench—

Millers Falls.	15¢@10%
Morrill's, No. 1.	\$10.00
Morrill's, No. 2.	\$12.50

Door—

Chapin-Stephens Co.	50¢@50¢@10%
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Plane—

Chapin-Stephens Co.	20%
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Straps—Box—

Carr's Universal, case lots.	20¢@10¢@10%
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Stretchers, Carpet—

Cast Iron, Steel Points, dos.	60¢@60¢@10%
Socket	doz. \$1.66
Excelsior Stretcher and Tack Hammer Combined.	doz. \$6.00

Stuffers, Sausage—

Enterprise Mfg. Co.	25¢@25¢@7 1/4%
National Specialty Co., list Jan. 1, 1902	30¢@5%
P., S. & W. Co.	40¢@10¢@5%

Sweepers, Carpet—

Bissell Carpet Sweeper Co.	doz.
Superba, Crotch Mahogany.	\$36.00
Triumph, Fancy Veneers.	\$35.00
Parlor Queen, Fig. Rosewood.	\$30.00
Elite, Hungarian Ash.	\$29.00
Am. Queen, Fig. Mahogany.	\$27.00
Ideal, Bird's-Eye Maple.	\$25.00
Grand Rapids, Nickel.	\$24.00
Japan	\$22.00
Standard, Nickel.	\$22.00
Crown Jewel, Nickel.	\$21.00
Crown Jewel, Nickel.	\$21.00
Crystal, Glass Top.	\$20.00
Grand, 17 in. wide.	\$18.00
Club, 24 in. wide.	\$14.00
Hall, 28 in. wide.	\$60.00

NOTE.—Rebates: 50¢ per dozen on three dozen lots; \$1 per dozen on five dozen lots; \$2 per dozen on ten dozen lots; \$2.50 per dozen on twenty-five dozen lots.

Tacks, Finishing Nails, &c.

American Carpet Tacks.	90¢@25%
American Cut Tacks.	90¢@25%
Sweeds' Out Tacks.	90¢@25%
Sweeds' Upholsterers'.	90¢@35%
Gimp Tacks.	90¢@35%
Lace Tacks.	90¢@35%
Trimmers' Tacks.	90¢@25%
Looking Glass Tacks.	65%
Bill Posters' and Railroad Tacks.	90¢@40%
Hungarian Nails.	80¢@10%
Finishing Nails.	70%
Trunk and Clout Nails.	80%

NOTE.—The above prices are for straight weights.

Miscellaneous—

Double Pointed Tacks.	90¢@10¢@90¢@10¢@10¢@5%
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See also Nails, Wire.

Tanks, Oil and Gasoline—

Wilson & Friend Co.:		Oil
Gal.	Gasoline	
30	\$2.75	\$3.00
60	\$3.50	\$4.00
120	\$5.00	\$5.75

Tapes, Measuring—

American Asses' Skin.	50¢@—
Patent Leather.	25¢@50¢@5%
Steel	35¢@5¢@5%
Chesterman's	25¢@25¢@5%
Keuffel & Esser Co.	
Favorite, Ass Skin.	40¢@10¢@50%
Favorite, Duck and Leather.	25¢@25¢@10%
Metallic and Steel, lower list.	35¢@
Pocket.	35¢@35¢@5%
Webb & Hilger:	
Chesterman's Metallic, No. 3M.	etc.
Chesterman's Steel, No. 10381.	etc.

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, 1/4-inch and larger.	per 100 lbs. \$2.75@3.00
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Thermometers—

Tin Case, Cabinet, Flange, Dairy, &c.	30¢@33 1/2%
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Ties, Bale—Steel Wire—

Single Loop.	80¢@10¢@5%
Monitor, Cross Head, &c.	70¢@2 1/2%

Tinners' Shears, &c.—

See Shears, Tinners', &c.

Tinware—

Stamped, Japanned and Piced, sold very generally at net prices.

Tire Benders, Upsetters, &c.

See Benders and Upsetters, Tire.

Tools—Coopers'—

L. & I. J. White.	20¢@20¢@5%
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Haying—

Myers' Hay Tools.	45%
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Miniature—

Smith & Hemenway Co.'s, Davidson, Nickel Plated.	\$1.50
Gold Plated.	\$2.00

Saw—

Atkins' Cross Cut Saw Tools.	35¢@5%
Simonds' Improved.	33 1/2%
Simonds' Crescent.	30%

Ship—

L. & I. J. White.	25%
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Transom Lifters—

See Lifters, Transom.

Traps—Fly—

Balloon, Globe or Acme, doz.	\$1.15@1.25; gro. \$1.10@1.20
Harper, Champion or Paragon, doz.	\$1.25@1.40; gro. \$1.30@1.50

Game—

Imitation Onocida.	75¢@75¢@10¢@5%
Newhouse	40¢@40¢@5%
Hawley & Norton.	65%
Victor	70¢@10%
Onocida Community Jump.	50%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes	12¢
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Mouse, Round or Square Wire	doz. 85¢@90¢
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Marty French Rat and Mouse Traps	(Genuine):
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No. 1, Rat, doz.	\$13.25; case of 24
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No. 3, Rat, doz.	\$6.50; case of 50
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No. 5, Rat, doz.	\$5.25; case of 12
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No. 4, Mouse, doz.	\$3.85; case of 150
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No. 5, Mouse, doz.	\$3.00; case of 150
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	\$2.25 doz.
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Trowels—

Disston Brick and Pointing.	25%
Disston Plastering.	20%
Disston "Standard Brand" and Garden Trowels.	30%
Kohler's Steel Garden Trowels.	gro. 5 in. \$4.00; 6 in. \$6.00
Never-Break Steel Garden Trowels.	gro. \$6.00
Woodrough & McParlin, Plastering.	25%

Trucks, Warehouse, &c.—

B. & L. Block Co.:	
New York Pattern.	50¢@10%
Western Pattern.	60¢@10%
Handy Trucks.	doz. \$18.00
Grocery	doz. \$15.00
McKinney Trucks.	each, net \$10.00
Model Stove Trucks.	doz. \$18.50

Tubs, Wash—

M'f'gr's list, price per gross.				
	No. 0	1	2	3
Galvanized	\$67	\$79	\$89	\$99 10%

Twine, Miscellaneous—

Flax Twine:	
No. 9, 1/4 and 1/2-lb. Balls.	21¢@25¢
No. 12, 1/4 and 1/2-lb. Bal.	21¢@23¢
No. 15, 1/4 and 1/2-lb. Balls.	18¢@20¢
No. 24, 1/4 and 1/2-lb. Balls.	17¢@19¢

No. 36, 1/4 and 1/2-lb. Balls.	17¢@19¢
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Chalk Line, Cotton	1/4-lb. 20¢@31¢
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Cotton Mops, 6, 9, 12 and 15 lb.	doz. 11¢@19¢
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Cotton Wrapping, 5 Balls to lb.	according to quality. 15¢@23¢
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American 2-Ply Hemp, 1/4 and 1/2-lb. Balls.	14¢@15¢
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American 3-Ply Hemp, 1-lb. Balls.	15¢@16¢
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India 2-Ply Hemp, 1/4 and 1/2-lb. Balls (Spring Twine).	10¢@11¢
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India 3-Ply Hemp, 1-lb. Balls.	10¢@11¢
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India 3-Ply Hemp, 1 1/2-lb. Balls.	10¢@11¢
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2, 3, 4 and 5-Ply Jute, 1-lb. Balls.	13¢@14¢
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Mason Line, Linen, 1/2-lb. Bal.	47¢
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No. 26 1/2 Mattress, 1/4 and 1/2-lb. Balls, according to quality.	30¢@60¢
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Wool, 3 to 6 ply.	B 9¢; A 10¢
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Vises—

Solid Box.	50¢@50¢@10%
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Parallel—

Athol Machine Co.:	
Simpson's Adjustable.	40%
Standard	40%
Amateur	40%
Columbian Hdw. Co.	40%
Fisher & Norris Double Screw, net, each, Nos. 2, \$10.50; 3, \$16.00; 4, \$20.50; 5, \$27.00.	
Fulton Mach. & Vise Co.:	
Reed, Swivel	25%
Star, Solid Jaw.	40%
Hollands':	
Machinists'	40¢@40¢@5%
Keystone	65¢@50¢@70%
Lewis Tool Co.:	
Adjustable Jaw.	30%
Monarch, 50%; Solid Jaw.	50%
Massey Vise Co.:	
Clincher	40%
Perfect, 15%; Lightning Grip.	15%
Merrill's	25%
Rock Falls Oval Slide Pattern.	60¢@10%
Parker's:	
Victor, 20¢@25%; Regulars.	20¢@25%
Vulcan's	40¢@45%
Combination Pipe.	55¢@60%
Prentiss	20¢@25%
Rock Island	25%
Snediker's	35%
Stephens'	33 1/2%

Saw Filers—

Disston's D 3 Clamp and Guide.	doz. \$24.00, 30%; Clamp.
Perfect Saw Clamps.	doz. \$4.00
Leading	60%

Wood Workers—

Fulton Mach. & Vise Co.:	
Reed	25%
Star	40%
Massey Vise Co.:	
Lightning Grip, 15%; Perfect.	15%
Wyman & Gordon's Quick Action, 6 in., \$6.00; 9 in., \$7.00; 14 in., \$8.00.	

Miscellaneous—

Holland's Combination Pipe.	60¢@60¢@5%
Massey's Quick Action Pipe.	40%
Parker's Combination Pipe:	
87 Series, 60%; 187 Series, 60¢@5%; No. 870	40%
Rock Island Pipe.	25%

Wads—Price per M.

B. E., 11 up.	60¢
B. E., 9 and 10.	70¢
B. E., 8.	80¢
B. E., 7.	80¢
P. E., 11 up.	\$1.00
P. E., 9 and 10.	1.25
P. E., 8.	1.50
P. E., 7.	1.50
Ely's B. E., 11 and larger.	\$1.70@1.75
Ely's P. E., 12 to 20.	\$3.00@3.25

Ware, Hollow—

Cast Iron, Hollow—	
Store Hollow Ware:	
Enameled	45¢@10%
Ground	50¢@5%
Plain or Unground.	60%
Country Hollow Ware, per 100 lbs.	\$3.00

White Enameled Ware:	
Maslin Kettles.	65¢@10%

Covered Ware:	
Tinned and Turned.	35¢@10%
Enameled	45¢@10%

See also Pots, Gluc.

Enameled—

Agate Nickel Steel Ware.	33 1/4%
Iron Clad Ware.	70¢@10%
Lava and Volcanic, Enameled.	40¢@10%

Tea Kettles—

Agate Nickel Steel Ware.....	33%
Iron Clad Ware.....	70&10%
Lava and Volcanic, Enameled..	40&10%

Steel Hollow Ware—	
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Avery Spiders and Griddles.	65¢@65¢@5%
Avery Kettles.	60%
Porcelainized.	50¢@50¢@10%
Never Break Spiders and Griddles.	65¢@5%
Never Break Kettles.	60%
Solid Steel Spiders and Griddles.	65¢@5%
Solid Steel Kettles.	60%

Wormers, Foot—	
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Pike Mfg. Co., Soapstone.	40¢@40¢@10%
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Washboards—	
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Solid Zinc:	doz.
Crescent, family size, bent frame.	\$4.05
Red Star, family size, stationary protector.	\$4.05
Double Zinc Surface:	
Saginaw Globe, family size, stationary protector.	\$3.55
Cable Cross, family size, stationary protector.	\$3.60
Single Zinc Surface:	
Nalad, family size, open back, perforated.	\$7.90
Single Saginaw Globe.	\$2.85

Brass Surface:	
Brass King, Single Surface, open back.	\$4.05
Nickel Plate Surface:	
No. 1001 Nickel Plate, Single Surface.	\$3.60
Glass Surface:	
Glass King, Single Surface, open back.	\$3.95
Enamel Surface:	
Enamel King, Single Surface, vented back.	\$3.95

Washers—Leather, Axle—

Solid	80¢@10¢@90%			
Patent	90¢@90¢@5%			
Coll:	7/8	1	1 1/4	1 1/2
	11¢.	12¢.	13¢.	15¢.
	per box			

CURRENT METAL PRICES.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from store—

Refined Iron:	
1 to 1½ in. round and square.....	2.10¢
1½ to 4 in. x ½ to 1 in.....	2.30¢
1½ to 4 in. x ½ to 5-16.....	2.30¢
Rods—¾, and 1-16 round and square.....	2.30¢
Angles:	
3 in. x ¼ in. and larger.....	2.45¢
8 in. x 3-16 in. and ¼ in. (except 3½ in. and 4 x ½ 2.50¢).....	2.65¢
1½ to 2½ in. x ½ in.....	2.45¢
1½ to 2½ in. x 3-16 in. and thicker.....	2.45¢
1 to 1½ in. x 3-16 in.....	2.50¢
1 to 1½ x ½ in.....	2.65¢
¾ x ½ in.....	2.75¢
¾ x ½ in.....	3.00¢
¾ x 3-16 in.....	4.30¢
Tees:	
1 in.....	2.75¢
1½ in.....	2.55¢
1½ to 2½ in.....	2.45¢
3 in. and larger.....	2.50¢
Beams.....	2.45¢
Channels, 3 in. and larger.....	2.45¢
Bands—1½ to 6 x 3-16 to No. 8.....	3.00¢
"Burden's Best" Iron, base price.....	3.10¢
"Burden's" "H. B. & S." Iron, base price.....	3.10¢
"Ulster".....	3.10¢
Norway Bars.....	3.00¢
Norway Shapes.....	3.90¢

Merchant Steel from Store—

Bessemer Machinery.....	2.10¢
Toe Calk, Tire and Sleigh Shoe.....	2.50¢@3.00¢
Best Cast Steel, base price in small lots.....	7¢

Sheets from Store—

Black	One Pass, C.R.	R. G.
	Soft Steel.	Cleaned.
No. 14.....	2.95¢	3.10¢
Nos. 18 to 21.....	3.15¢	3.10¢
No. 27.....	3.20¢	3.50¢
No. 28.....	3.30¢	3.60¢

Russia, Planished, &c.

Genuine Russia, according to assort- ment, W. Devoswood.....	11½¢@14½¢
Patent Planished.....	10¢; B. 9¢, net.

Galvanized.

Nos. 14 to 16.....	3.35¢
Nos. 22 to 24.....	3.75¢
No. 27.....	4.20¢
No. 28.....	4.45¢

No. 20 and lighter 36 inches wide, 25¢ higher.

Tin Plates—

American Charcoal Plates (per box.)

A.A.A. Charcoal:	
IC, 14 x 20.....	\$6.60
IX, 14 x 20.....	7.85
A. Charcoal:	
IC, 14 x 20.....	\$5.65
IX, 14 x 20.....	6.75

American Coke Plates—Bessemer—

IC, 14 x 20.....	108 lb.....	\$4.65
IX, 14 x 20.....		5.65

American Terne Plates—

IC, 20 x 28 with an 8 lb. coating.....	\$9.00
IX, 20 x 28 with an 8 lb. coating.....	11.00

Seamless Brass Tubes—

List December 4, 1905.....	Base price 20 ¢
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Brass Tubes, Iron Pipe Sizes—

List December 4, 1905.....	Base price 30¢
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Copper Tubes—

List December 4, 1905.....	Base price 23¢
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Brazed Brass Tubes—

List June 6, 1898.....	23½¢
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High Brass Rods—

	16½¢
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Roll and Sheet Brass—

List June 6, 1898.....	16½¢
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METALS—

Tin—

Straits Pig.....	24 ¢@25 ¢
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Copper—

Lake Ingot.....	15½¢@16 ¢
Electrolytic.....	15 ¢@15½¢
Casting.....	14½¢@15 ¢

Sheet Copper Hot Rolled, 16 oz.....	18¢@19¢
Sheet Copper Cold Rolled, 1¢ advance over Hot Rolled.....	
Sheet Copper Polished 20 in. wide and under, 1¢ advance over Cold Rolled.....	
Sheet Copper Polished over 20 in. wide, 2¢ advance over Cold Rolled.....	
Bottoms, Flts and Flats.....	22¢
Planished Copper, 1¢ more than Polished.....	

Spelter—

Western.....	6¼¢@6½¢
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Zinc.

No. 9, base, casks, 8¢ 8.00¢ Open.....	8.50¢
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Lead.

American Pig.....	5¼¢@5½¢
Bar.....	6¼¢@6½¢

Solder.

¼ & ½, guaranteed.....	23½¢@23½¢
No. 1.....	20½¢@21¼¢
Refined.....	18¼¢@18¼¢
Prices of Solder indicated by private brand vary according to composition.	

Antimony—

Cookson.....	12¢
Halletts.....	12¢
Other Brands.....	11¢

Aluminum—

No. 1 Aluminum (guaranteed over 99% pure), in ingot for remelting:	
Small lots.....	nominal
100-lb lots.....	nominal

Old Metals.

Dealers' Purchasing Prices Paid in New York

	Cents
Copper, "C" and Wire.....	11.00¢@11.5 ¢
Copper, Light and Bottoms.....	10.00¢@11.00¢
Brass, Heavy.....	7.50¢@8.0 ¢
Heavy Machine Composition.....	10.00¢@11.0 ¢
Clean Brass Turnings.....	6.50¢@6.75¢
Composition Turnings.....	8.00¢@8.5¢
Lead, Heavy.....	4.25¢
Tea Lead.....	3.75¢
Zinc Scrap.....	3.25¢
No. 1 Yard Wrought, Long.....	12.00¢@12.5 ¢
No. 1 Yard Wrought, Short.....	11.00¢@11.5 ¢
Wrought Pipe.....	8.25¢@9.10 ¢
No. 1 Machinery Cast.....	13.50¢@14.00 ¢
Stove Plate.....	12.00¢@12.50 ¢

THE IRON AGE

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